

AUTOMOTIVE INDUSTRIES

AUTOMOBILE

Volume 67

Reg. U. S. Pat. Off.

Number 15

NORMAN G. SHIDLE, Directing Editor
LESLIE PRAT, Managing Editor
P. M. HELDT, Engineering Editor
JOSEPH GESCHELIN, Eng. Editor
ATHEL F. DENHAM, Field Editor
GEOFFREY GRIER, Art Editor

Contents

Prices Must Be Pushed Up, Industry's Executives Say. By Norman G. Shidle	443
Just Among Ourselves	445
Welding of Commercial Chassis in an Austrian Plant Effects Savings With Lighter Frames.	446
Irish Rail Car Powered With Drumm Zinc-Nickel Battery	449
Faster Relocated Superchargers Add 650 hp. to Miss America X Powerplant	450
British Makers Bid for 1933 Sales With Lines of Wide Appeal in Lower Priced Bracket. By P. M. Heldt	452
Oscillating Head of Pratt & Whitney Die Sinker Increases Production	456
Hydraulic Device Developed to Cure "Wheel Fight"	458
The Forum	460
Automotive Oddities	462
News of the Industry	463
Calendar of Coming Events	470
New Developments	471
Advertisers' Index	40

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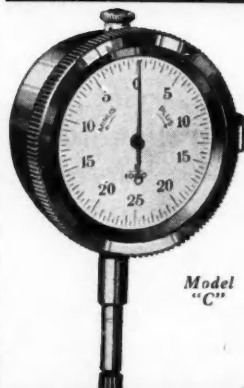
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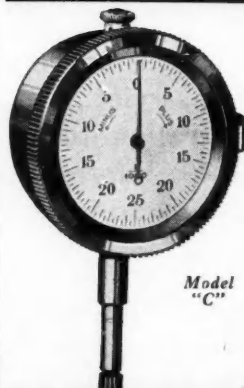
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• THIRTY-FOURTH YEAR •

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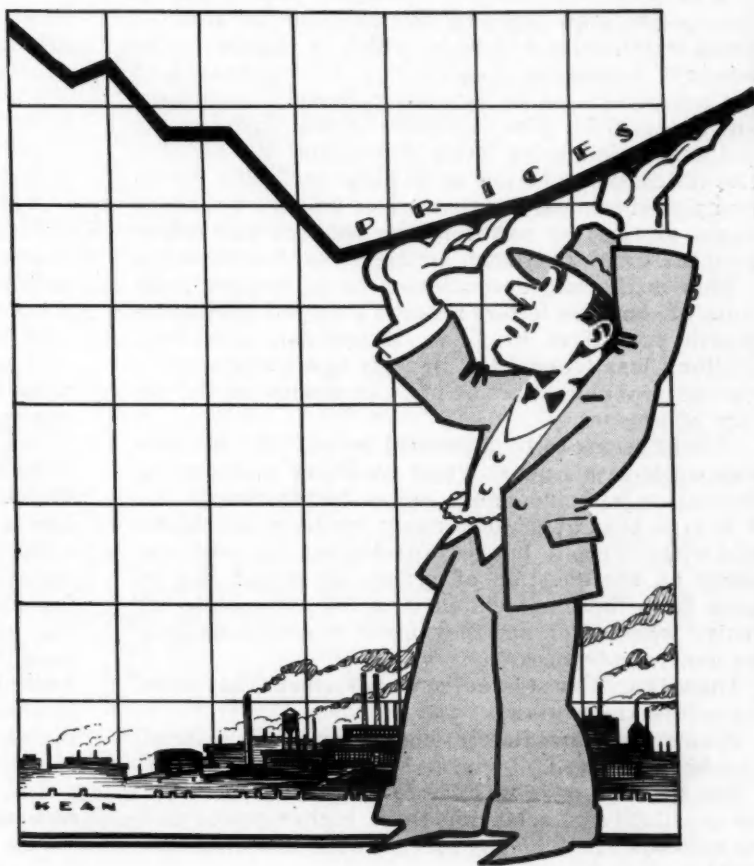
Prices Must Be Pushed Up, Industry's Executives Say

Buying power of the masses, upon which has been built huge enterprises, must be returned before normal profits can accrue to U.S. business, industrial leaders declare.

200 executives agree prices are low, but have hope only in a concerted effort if advances are to be successfully instituted

"SUPPOSE we could get one or more big buyers to pay us a fair price for our product with the agreement set forth that we would pay a stipulated wage rate of say 35 cents for common labor and 60 cents for more skilled workers plus whatever they could earn on a piece-work basis; and then suppose we could get these big buyers to set up a minimum guarantee of steady work for a period of time—say 18 months or two years.

"If I were armed with a contract of that kind from some big automobile manufacturer, I could go out into my shop where we employ at the present time about 200 men, tell those men the rates that had been set up, tell them that we had been guaranteed continuous operation for a period of time, and I could



by Norman G. Shidle

sell to my men 30 passenger cars in a month's time—and when I say 30 cars, I feel that that is a minimum."

So wrote one automotive parts supplier to another recently.

Then he added:

"Working as we are now, at about 20 cents for common labor and 40 cents for more skilled men, the market for cars with these people has simply evaporated and never will come back until wages are on a better basis. Now, what I feel could be done in this

Prices...Wages...Prosperity

Practically all of the executives who replied to Mr. Musselman's letter feel that wage scales must be advanced before buying power can be restored in any large measure.

And practically all of them agree that these higher wages cannot come unless they are preceded by higher prices for finished products.

plant undoubtedly could be repeated in hundreds of other plants."

Whether or not there is economic practicality in the specific plan urged by this supplier, he does express graphically a thought which is clearly in the minds of hundreds of executives in every branch of the automotive parts, accessory, factory equipment and supply field. The consensus of executive opinion is that present price levels throughout the automotive industry are so low as to make profitable operation almost impossible; that prices must go up before wages and buying power can be restored and before even marginal profit can accrue to most companies.

This is the major conclusion to be derived from study of some 200 letters recently received from automotive executives by C. A. Musselman, president, Chilton Class Journal Co., in reply to a query regarding the probable effect of price increases on the return of prosperity.

"There seems to be a general belief," Mr. Musselman wrote in his query, "that declining prices bring depression and advancing prices better times. . . . It is true that at present many products are being sold without profit, but before adopting any editorial policy on the question of prices, we would like to know from those associated with the automobile industry whether or not they favor recommendations for general advances."

There is an almost unanimous agreement that present prices are too low.

Desire for immediately higher prices is almost unanimous as well.

But there is definite divergence of opinion as to the possibility of achieving these higher prices and the methods by which any movement in this direction might best be fostered.

One group of executives believes that the act of increasing prices in itself will stimulate increased buying. Buyers are ever backward about entering a declining market, they point out, and when a price increase is announced, purchasers are lured into immediate buying through fear of further increases. Executives in this group, while positive in their convictions, do not comprise a majority of those answering.

A second group—by far the largest in number—favors price increases very definitely and would like to see such advances urged upon the industry as a whole, but doesn't believe it possible for an individual manufacturer to "get away" a price advance until demands begins to exceed supply—at least temporarily.

Executives in this group—which is thoroughly representative of the parts, accessory, and factory equipment suppliers of the industry—would very much like to see motor vehicle manufacturers increase car and truck prices, passing back to their suppliers a part of that increase. They register the dire need for higher parts prices very definitely, but, for the most part, think that these prices can be obtained only if the car and truck makers increase the price charged to the public for motor vehicles.

A third group—which in many ways melts indivisibly into the thinking of the second group just mentioned—very definitely takes the position that prices, whether rising or falling, are an effect, not a cause, economically speaking. The law of supply and demand, they say, always has been and always will be the governing factor in determining what price can be obtained for a given product, and prices can rise again only as demand for products actually increases. Prices do not make demand, they say; demand makes prices. But this group, too, is unanimous in agreeing that current prices are too low to permit satisfactory operations.

Within this wide range of thinking, a multitude of individual economic byways are explored by answering executives, some of which are equally as interesting as the main highway of the discussion—the need for increased prices on automotive products. Some of these byways may be discussed in future issues. For the moment, some of the detailed reasoning on which the three groups base their conclusions is most pertinent.

The vice-president of an important steel company reflects rather typically the opinion of the first group which thinks that price increases in themselves can be a potent force in stimulating buying to higher levels. He writes:

"We adhere to the theory that advancing prices accelerate business and declining prices accentuate the depression. We firmly believe that higher prices will automatically bring renewed confidence and stimulate business."

The general manager of a Mid-Western accessory concern confirms this view with the statement that: "We feel there has been too much price cutting and too great a change in wage rates to be of any general benefit to anyone and the only way we can return to prosperity is to have a fair and stable price setup and wage rates."

Other statements developing this same idea included the following:

(Turn to page 455, please)

JUST AMONG OURSELVES

Why Walter Chrysler Will Be on Page One

NEXT week the opening page of *Automotive Industries* will contain the facsimile of a letter from Walter Chrysler in which the great executive states clearly and unequivocally a constructive creed as regards machine tool and factory equipment purchasing; a creed which he applies in poor as well as in good times. It is brief, pointed and sound.

With signs pointing definitely to a gradual upturn in business, there is reason today for automotive manufacturers of all kinds to reconsider the economics of factory equipment buying in its relation to the business community as a whole.

The Robertson Committee authorized by the Washington Conference of the Federal Reserve District Banking and Industrial Committees, is reemphasizing to business men some important truths.

The Endless Chain Works Both Ways

EACH order for improved equipments, it is pointed out, starts a chain of other orders, a wave of work required in the production, processing, transportation, installation and sale of material and services that reach back into the mines, forests and farms.

Also the new machine itself cuts production costs and makes

lower prices possible, which widens the market and creates additional employment — clerical, sales, transportation, distribution, installation, servicing, etc.

Hence, it is argued, equipment modernization will bring large increase in employment in numerous trades throughout the country; stimulation to many industries through successive stages of industrial purchasing; and increased volume of general business through spending of wages for food, clothing, etc.

Here Are Six Good Reasons

OBVIOUSLY, hard-headed business men cannot be expected to buy new factory equipment simply as a philanthropic gesture. Earnings and dividends do come that way.

But men charged with management of business are called upon to consider six points submitted by the Robertson Committee—reasons which are as sound as American business itself:

MANY corporations have liquid funds drawing low interest that would be better invested in more profitable equipment.

RECENT rapid improvement in equipment design offers unusual opportunity for cost reduction.

EQUIPMENT can be purchased and installed today at a cost way below normal.

CHANGES in equipment can be made now most easily when plants are not busy.

BBETTER production efficiencies will improve the company's price position and increase its earning power.

OBSOLESCENCE means not waste alone, but loss of opportunity for better profits.

A "Shot in the Arm" for Business

HOLOCAUSTS, floods or other devastating acts of nature are sufficiently dramatic to stir the imagination of man into action. Then, faced with a startling necessity for rehabilitations, reserves are drawn upon and action never fails.

But the economic devastation which has smothered world business since that dismal day in 1929 when prices began their long, ruthless toboggan, has been so enervating that many a business man has acquired a passive resistance to these lean days that would do the wizened Mahatma credit.

This plan, then, may be just the stimulant needed to stir the minds of men into action.

Certainly reequipment of business will go a long, long way in stimulating—and achieving—business recovery.

—N.G.S.

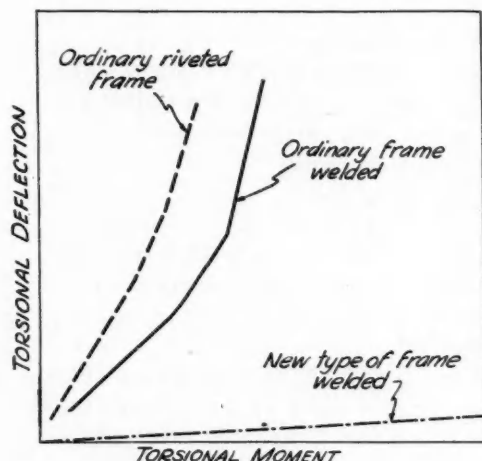
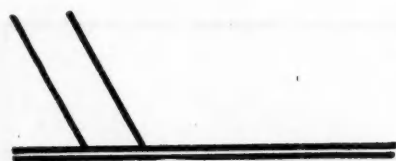


Fig. 1—Comparative stiffnesses of various kinds of frames

AMONG the papers submitted for the Second Lincoln Arc-Welding Prize Competition, sponsored by the Lincoln Electric Company of Cleveland, Ohio, was one entitled "Some Hints on Making Electro-Welded Auto Car Frames," by Novac Ferdinand, chief engineer of the body department, Austrian Automobile Works, Inc., Vienna.

Since the welding of frames is a subject that has held the attention of American automobile engineers for some time, the following transcription of the paper should prove of interest to our readers. The problem with which Mr. Ferdinand was faced was one of small-scale production, and the article should be read with that viewpoint in mind. Where thousands of frames of the same design are required, production problems assume a rather different aspect.

Welding of Commercial C Effects Savings With L

From the body builder's standpoint, the chassis frame is one of the most important parts, although its cost usually amounts to only 8 to 12 per cent that of the whole car. The principal stresses on the frame are torsional, and the conventional frame, composed of longitudinal and transverse pressed-steel sections united by riveting, does not resist torsional stresses very well. The advantage of welding over riveting in the fabrication of chassis frames is that the former process results in exceedingly stiff joints and distributes the stresses at the joints over larger areas.

One reason riveted joints yield more under the stresses encountered in frames is that these stresses are of a high frequency nature, as associated with a shattering effect, a fact supported by the results of experiments. The difference between the yield amounts to as much as 20 per cent, as shown by Fig. 1, which is based upon extensive experimental results.

Undoubtedly the principal advantage of welded joints for motor vehicle frames lies in the greater stiffness of the joints, but the welding process as applied to frames also offers a number of other advantages, viz.:

A. When starting production on a new line, it is possible to introduce at the same time novel features of frame design, as illustrated in Fig. 2.

B. No costs for dies need be incurred until the proposed design has been shown to be practical.

C. The production of sample frames can be started

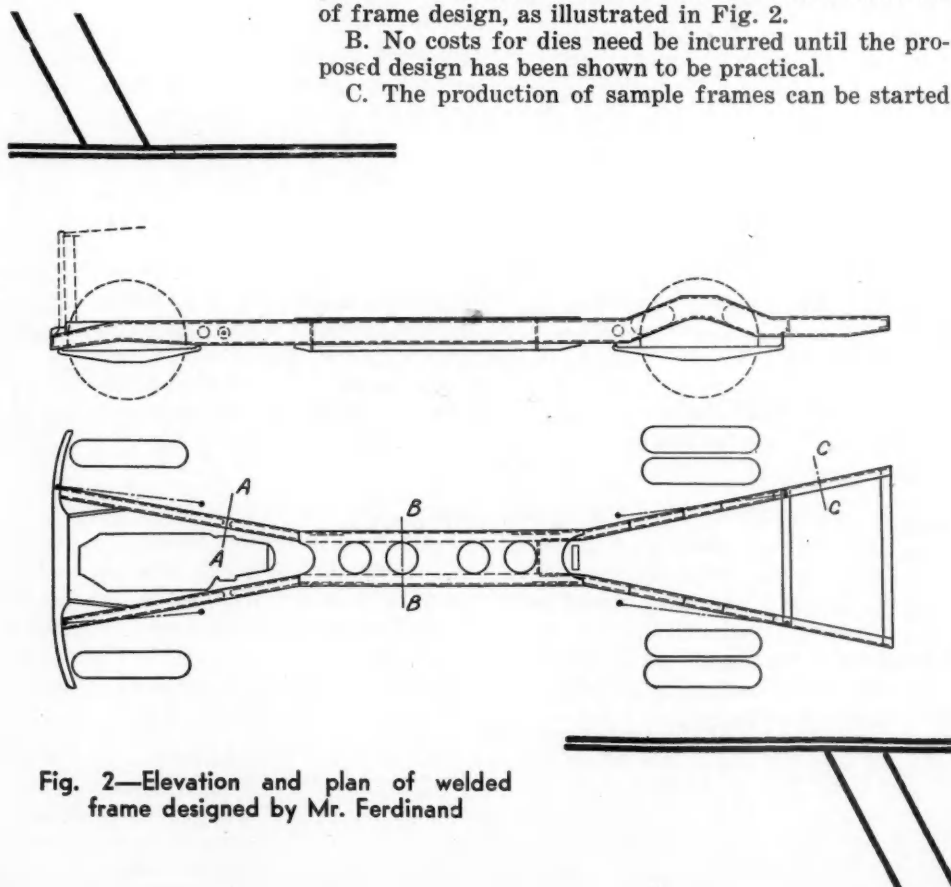


Fig. 2—Elevation and plan of welded frame designed by Mr. Ferdinand

Chassis in an Austrian Plant

Lighter Frames

The problem with which the writer was faced was one of limited production and he compares costs for a single frame and for lots of 200

upon at once (without waiting for the completion of dies).

Welding of frames also offers advantages in regular production which are of no less importance than those enumerated above:

A. When the frame is electrically welded its weight will be less in spite of the fact that it has greater torsional rigidity.

B. A welded frame comes cheaper than one made of steel pressings. The welded construction is cheaper

even where quantities of 100-200 frames are involved, and a detailed cost calculation (based on Austrian conditions) attached to Mr. Ferdinand's paper led to the following results:

Total Cost Per Frame Including Tool and

	Die Cost		Cost Reduction	
	Riveted	Welded by	Welding	
	Per Cent	Per Cent	Per Cent	
1 frame	100	11	89	
10 frames	100	40	60	
100 frames	100	59	41	
200 frames	100	60	40	

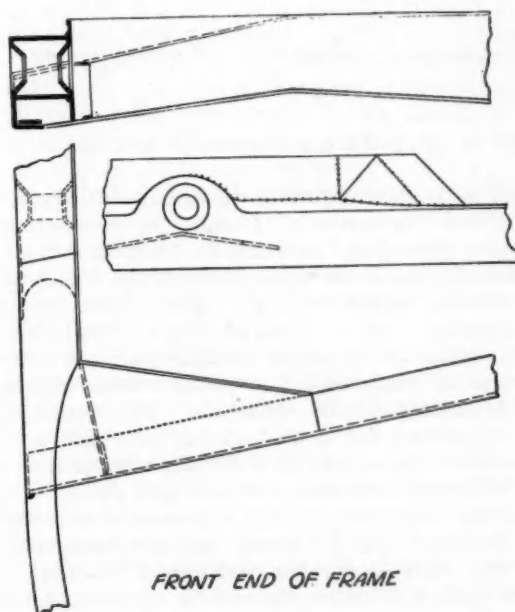
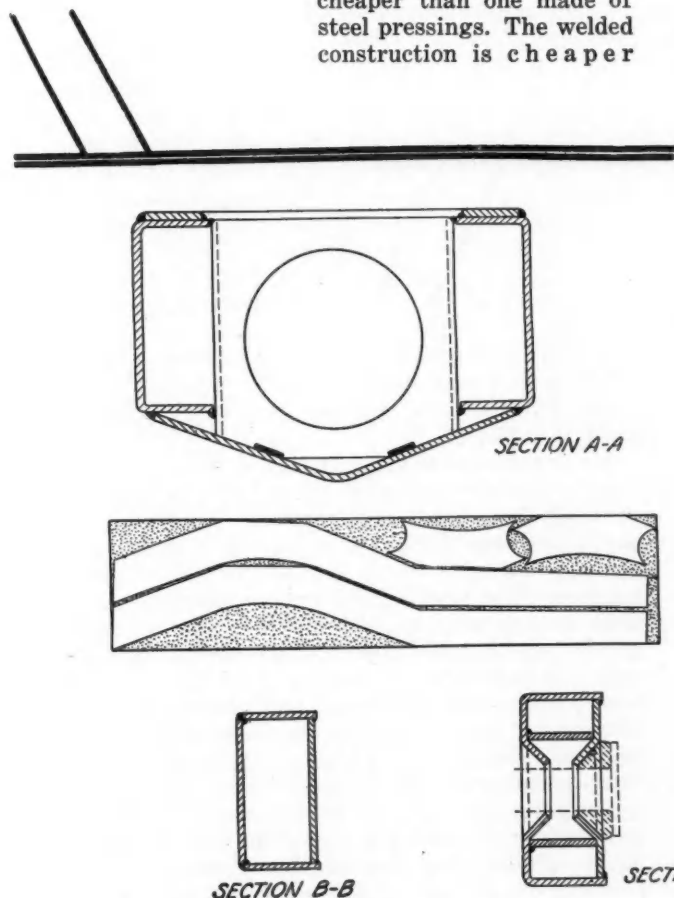


Fig. 3—Details of welded frame

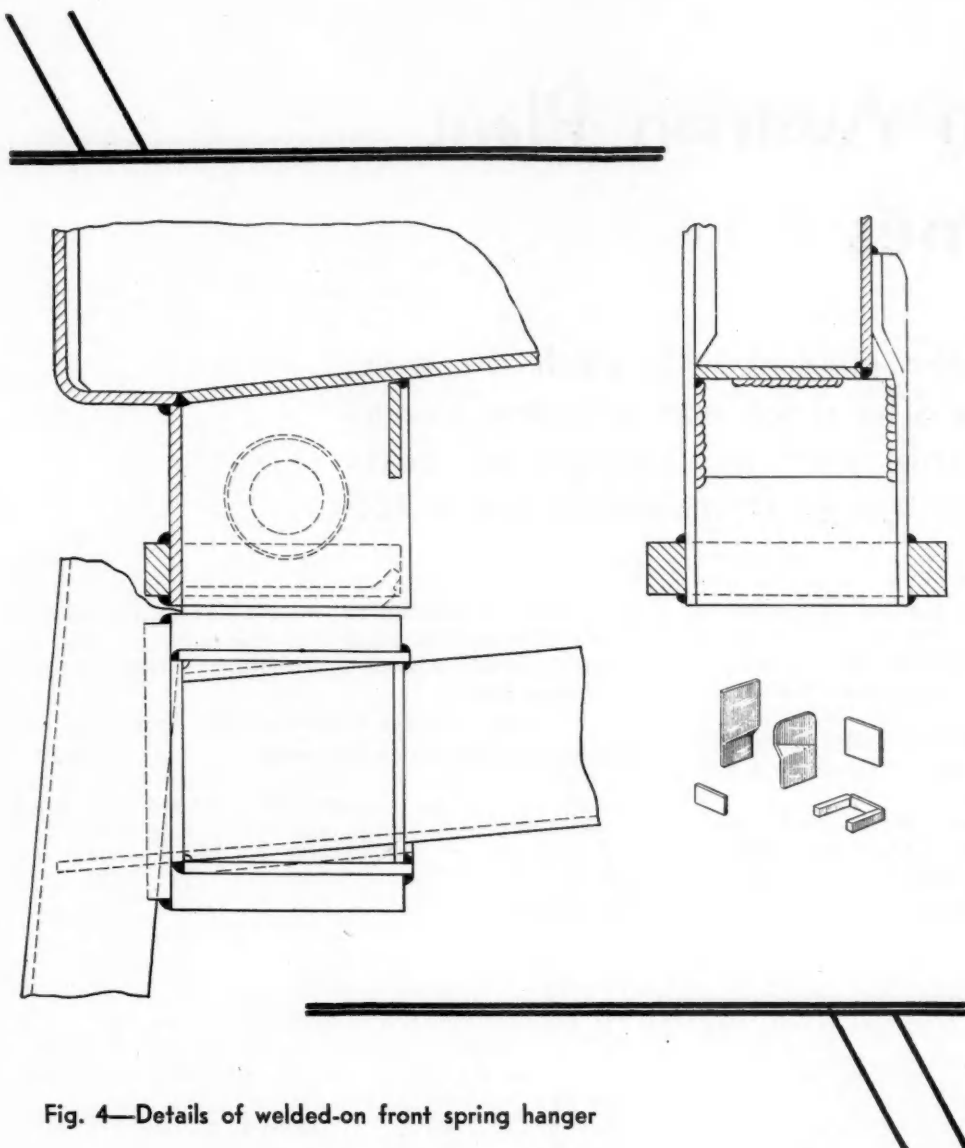


Fig. 4—Details of welded-on front spring hanger

C. There is no need for an expensive installation of presses.

It should be pointed out that these calculations apply only to the production of frames for commercial vehicles under conditions existing in Austria and the greater part of Central Europe. Commercial transport vehicles, with the exception of the lighter types, up to two tons capacity, can be produced only in small numbers. Even when an order for from 20 to 50 vehicles is given, various changes in individual trucks will be asked for to satisfy specific demands. This makes it the more important for a manufacturing concern to be in position to meet changing demands without being hampered by large investments in tools and dies.

Fig. 2 shows only the principal features of the new frame as designed for a chassis of five tons total weight. Fig. 3 shows a number of details of the frame, including a section through the central portion, and a view of the forward part with the radiator support. Fig. 4 illustrates the attachment of the front spring brackets in which electric welding is used exclusively. It will probably come as a surprise that in the attachment of the eight spring brackets required for the frame a weight reduction of no less than 178 lb. is effected.

In the cost calculation the chief items are wages for cutting and welding, so that any reduction in the cut-

ting and welding lengths will increase the savings. One of the views in Fig. 3 illustrates a method of cutting two parts of the side members and their reinforcements from a single sheet in such a way that 70 per cent of the total metal is utilized. The cutting length is only 26 ft. 3 in., whereas the combined peripheries of the four pieces measure 42 ft. 7 in.

When planning the design, it is also important to distinguish between formed and welded constructions. The longitudinal parts at the center of the frame, for instance, are formed instead of being welded up out of three parts. The reason the cross-member which supports the radiator is made a pressing is that the tools for this part happened to be available.

Owing to the stiffness of welded frames, care must be taken not to change too abruptly from one section to another. Point A in Fig. 2 is an instance in point.

In the cost calculation accompanying the paper it was also shown that the new frame when welded weighs 172 lb. or 13 per cent less than when riveted. This difference in weight is explained by the omission of certain accessory sheet iron parts and the lighten-

ing of the spring brackets. The important point is that in a riveted frame the longitudinal members have to be made of 7 mm. stock, whereas for a welded frame 6mm. stock is sufficient.

Mr. Ferdinand points out that experience in similar work is rather important when tackling the problem of producing motor car frames by welding. His organization was fortunate in having had previous experience in fabricating frames for heavy transport trailers. The most troublesome feature proved to be distortion in welding, but this was nearly completely eliminated after sufficient experience had been gained and skill had been acquired by the welders. Even the most complicated problems of this nature prove capable of solution, and an example is shown in Fig. 5. This problem arose in connection with the all-steel bus body, where a belt rail had to be welded to the body posts. By bending the belt rail by means of a special form previous to the welding operation and removing the fixture after the welding had been completed, the contraction on cooling of the weld and adjacent metal caused the rail to straighten.

One great advantage of the welded frame is the short period of delivery of experimental or sample frames. In the case of a pressed steel riveted frame, 28 days must be allowed for the production of the tools, the

(Turn to page 457, please)

Irish Rail Car Powered With Drumm Zinc-Nickel Battery

New cells have higher electromotive force and internal resistance of only one-fourth to one-fifth that of other types of alkaline battery cells

A NEW zinc-nickel alkaline storage battery, known as the Drumm, is being made use of in storage-battery railcars operating on the Great Southern Railway of Ireland between Dublin and Bray, a distance of 15 miles.

The object aimed at by the inventor of this new battery, Dr. Drumm, was to overcome the disadvantages of the ordinary alkaline type of storage battery, viz., the low electromotive force (about 1.2 volts) and the high internal resistance which puts limitations on the charging rate, since the temperature of the cell must not be allowed to exceed 115 deg. Fahr. if its life is not to be adversely affected.

The new cells have a higher electromotive force and an internal resistance which for the same active surface is only one-fourth to one-fifth that of other types of alkaline cells. The characteristics of the cells are reflected by the following specifications of the railcar battery:

Number of cells	264
Total voltage	500
Voltage per cell	1.9
Dimensions of cell in in.	13.5 x 10 x 15
Weight of cell in lb.	130
Capacity of battery in amp.-hr.:	
Discharge in ½ hr.	150
Discharge in 1 hr.	300
Discharge in 2 hr.	600

The normal mileage between charges is 15 and the maximum 90. The maximum rate of discharge is 1500 amp. for 10 seconds, and 300 amp. for a discharge in half an hour. The charging current must not exceed 700 amp. Regularly the charge is started at a rate of 500 amp., which is maintained for 20 minutes, and is completed at 300 amp., which is maintained for an hour and a half. The charging time is 1 minute for every mile traveled.

The battery is said to have an efficiency of 90-93 per cent on the ampere-hour basis and 70-74 per cent on the watt-hour basis.

The negative plates of the new storage battery are composed of a grid of nickel or monel metal (a natural alloy of nickel and copper), which is especially prepared by an electrolytic treatment of several hours' duration in a caustic soda solution which forms the regular electrolyte of the cell.

The specific gravity of this electrolyte is 1.22-1.25 at 60 deg. Fahr. For preparing or forming the grids, zinc oxide is dissolved in this solution until the solution is saturated, when its specific gravity is between 1.245 and 1.275. During the treatment of the nickel grid, a change seems to be taking place on its surface, which very likely is due to the formation of a nickel-hydrogen alloy, and the electromotive force necessary to produce "gassing" rises to the point at which deposition of zinc from the caustic potash solution takes place.

It is this deposit of zinc on the nickel which constitutes the negative active material.

The use of zinc as the negative material, which has been recommended for a long time as a means of increasing the electromotive force, and particularly by Edison, who deposited it on a supporting plate of magnesium, had not come into general use, owing to the difficulty of obtaining a homogeneous and dense deposit, particularly with a high charging rate, which is accompanied by great irregularity in the density of the current across the electrolyte. In the new cell the deposit is said to be dense and lustrous.

The positive plates, which are either tubular or flat, carry as active material an oxide of nickel or silver, or a mixture of the two. The nickel oxide should be mixed with graphite or the active material may have a grid or wires of nickel inserted in it to increase its conductivity.

For long periods of discharge at a high rate it is recommended that aluminum hydrate (1 per cent of the weight of the electrolyte) or beryllium hydrate (½ per cent) be added.

In an experimental battery with a total capacity of 15 amp.-hr. having three positive plates (1.25 lb.) and two negatives, with 1.65 lb. electrolyte, the internal resistance was found to be 0.0075 ohm for a discharge in ½ hr.; the capacity was 5 amp.-hr. for a charge of 40 amp. for 8 minutes, and the discharge e.m.f. 1.65 volts at the rate of 10 amp. After 10 successive cycles (8 minutes charge at 40 amp., 30 minutes discharge at 10 amp.) the rise was only 11-13 deg. Fahr. A temperature of 100 deg. Fahr. should not be exceeded.

The capacity of the new cells is 2.5 watt-hr. per pound for a charge in 8 minutes; 6 watt-hr. for charge in 20 minutes; 9 watt-hr. for a charge in 40 minutes, with efficiencies in amp.-hr. of 95, 93 and 90 per cent and in watt-hr. of 75, 70 and 65 per cent.

Faster, Relocated Superchargers Add 65

The compression ratio is 7.5 to 1 and the inlet pressure is 7.5-8 p. sq. in. at 2600 r.p.m. The drive of the compressors acts as a balancing device and decreases the torsional vibration of the engine

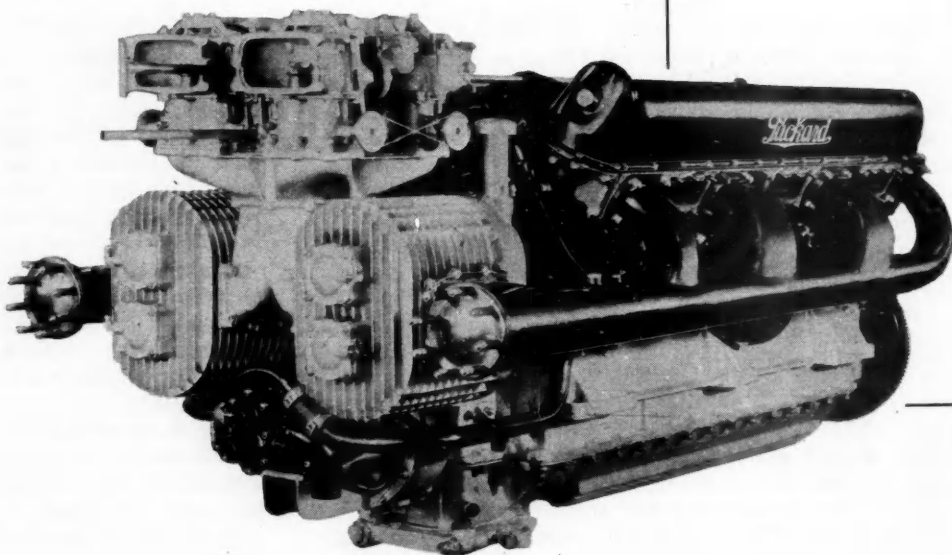
THE Packard engines which powered the Miss America X, Gar Wood's speedboat, that broke the world's record for motorboats on Lake St. Clair on September 20, were equipped with superchargers of the Roots' blower type. Each of the twelve-cylinder engines was equipped with two such superchargers. We are indebted to Louis Schwitzer, president of the Schwitzer-Cummins Company of Indianapolis, who built these superchargers, for the following details of the engines, the superchargers, and the supercharger drive:

Each supercharger or compressor fed one bank of cylinders through a drawn-steel manifold. This manifold is fitted with a blow-off valve to relieve the pressure in case of a backfire through the carburetors. Both superchargers are equipped with a common inlet manifold on which are mounted four downdraft Holley carburetors, each carburetor being a duplex design of 2¼ in. throat diameter.

Without superchargers the Packard engines (which are of 2540 cu. in. displacement each) developed around 1000 hp. at 2340 r.p.m. A first installation was made on these engines last year for the Miss America IX. The superchargers were then driven at a speed 1.86 times crankshaft speed, and the engine output was

Packard 1650-hp. engine, four of which powered Miss America X

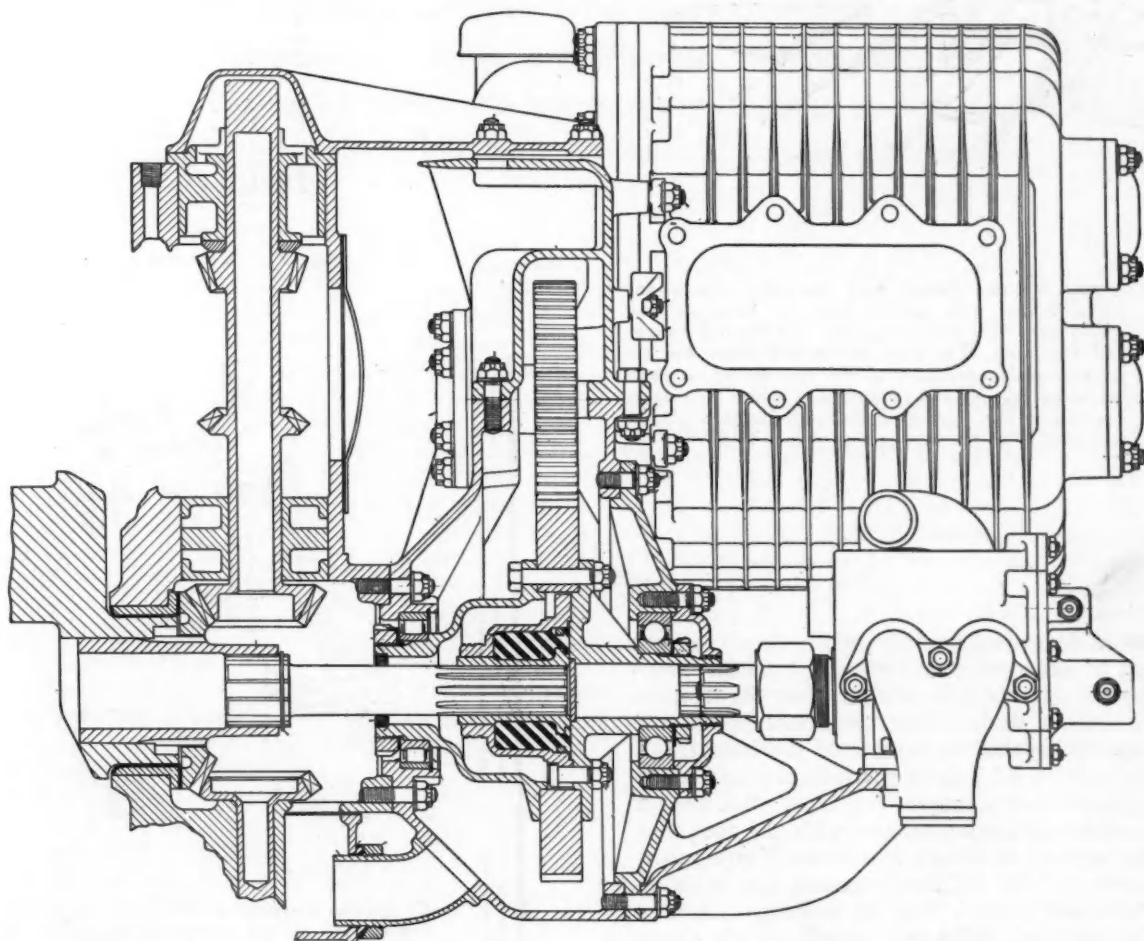
Supercharger installation and drive. Both compressors are driven from the crankshaft through a floating spline shaft in a rubber-insert flange on which is mounted the main driving gear



increased to 1450 hp. at 2400 r.p.m. This year on the Miss America X the compressors are placed on the end opposite the flywheel and driven at twice engine speed, through a gear drive. This is the reverse of their location last year and resulted in increasing the output to 1650 hp. at 2600 r.p.m.

The volumetric compression ratio of the engine is 7.5 to 1 and the inlet pressure is 7.5-8 lb. p.s.q.in. gage at 2600 r.p.m. The drive of the compressors is interesting inasmuch as it acts as a balancing device as

650 hp. to Miss America X Powerplant



well and decreases the torsional vibration of the engine.

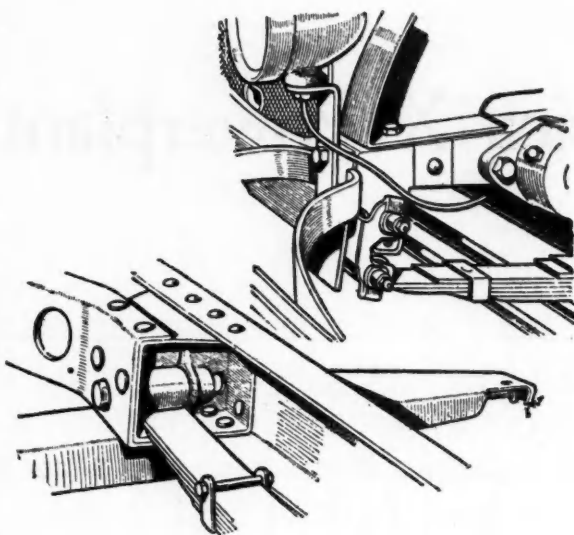
Both compressors are driven from the crankshaft through a floating splined shaft in a rubber-insert flange on which is mounted the main driving gear. The gear itself is supported in a roller and a ball bearing, the method of mounting giving a floating action, and is of sufficient moment of inertia to give considerable flywheel effect. The main drive gear drives the two compressors through an idler and the vanes of the compressors are set at an angle of 90 deg. with each other.

The water pump on the engine is driven through a splined shaft from the hub of the main drive gear. The whole driving arrangement, as well as the compressor gearing, is lubricated from the engine lubrication system.

Not only was the output increased by nearly 650 hp. per engine, but a 15 per cent increase in economy was achieved, Mr. Schwitzer informs us. The temperature of the intake gases in the common manifold is very close to the freezing point, which contributed considerably to the elimination of valve and spark-plug problems. The temperature rise through the compressor is around 130 deg. F.

The 650 hp. increase was achieved with a weight increase of only 200 lb. for the entire compressor installation, which brought the total engine and compressor weight to around 1700 lb.—a ratio of practically one pound per horsepower.

As at 2600 r.p.m. the power curve does not show any drop, it is believed that 2000 hp. can be obtained from these engines at 3000 r.p.m. with a few structural changes.



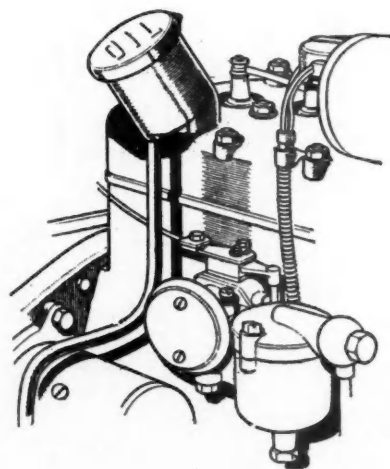
In the Wolseley Hornet particular efforts have been made to limit side sway in rounding turns, by providing more rigid connections between the rear springs and the frame. The view on the left shows the forward pivotal connection of the rear spring between the frame side rail and the rear end of the X-member. The view on the right shows the reinforced and guided rear shackle of the rear spring.—From THE MOTOR.

WHILE American manufacturers this year are slow in coming forward with new models, probably because of a conviction that the demand is bound to remain slack during the remainder of the year for reasons beyond the control of the industry, a considerable number of British manufacturers already have made their announcements for 1933. Reading of these announcements impresses one with the fact that many of the features of design and items of equipment newly adopted by the different makers are such as achieved popularity here a year or two ago. Among these may be included fuel pumps, combined air cleaners and silencers, cushioned mountings for engines, silent intermediate gears, free wheeling, downdraft carburetors, 14-mm. spark plugs, Startix, and frames with X-type cross-members. Hydraulic brakes and hydraulic shock absorbers also are coming strongly to the front.

From all reports, the depression has had about the same effect on the buying trend in England as here; that is to say, a larger proportion of purchasers than formerly go in for the low-priced, mass-produced makes of car. Although this shift in the demand has been to the advantage of the larger makers, still, the works of the latter are running below capacity, and several of them now are seeking to widen the appeal of their products by adding new lines. Thus Morris, the largest producer in England, has just added a 10-hp. model, which gives him six distinct chassis models and 26 separate car types. These cars range in piston displacement from 52 to 150 cu. in., in wheelbase from 78 to 120 in., and in price from about \$350 to about \$1,225. Probably more than 90 per cent of all cars currently bought in England fall within the displace-

British Makers Bid of Wide Appeal

by
P. M.
Heldt



On the new standard sizes there is a tight-fitting cap on the oil filler which is located on the cylinder head. A pipe from this filler, which terminates underneath the crankcase, carries away oil fumes.—From THE MOTOR.

ment range of up to 150 cu. in., and having six different chassis lines, this maker is in position to compete for a very large share of the total market. It must not be understood that the various chassis are different in every detail; a good many parts are interchangeable between them, and the manufacturing problem therefore is not as involved as it may seem at first glance.

Another important manufacturer, Standard, recently announced the addition of two six-cylinder chassis to the four lines produced last year. In this case, too, the principle of interchangeability of parts between different chassis has been adhered to, and two of the chassis differ only in having four and six-cylinder engines respectively, and different lengths of wheelbase.

Bid for 1933 Sales With Lines Appeal in the Lower Priced Bracket

Fuel pumps, combined air cleaners and silencers, cushioned engine mountings, X-type chassis cross-members are some of the features appearing for the first time in several makes of cars

This firm, by the way, is offering Bendix automatic clutch control as an optional extra on certain models.

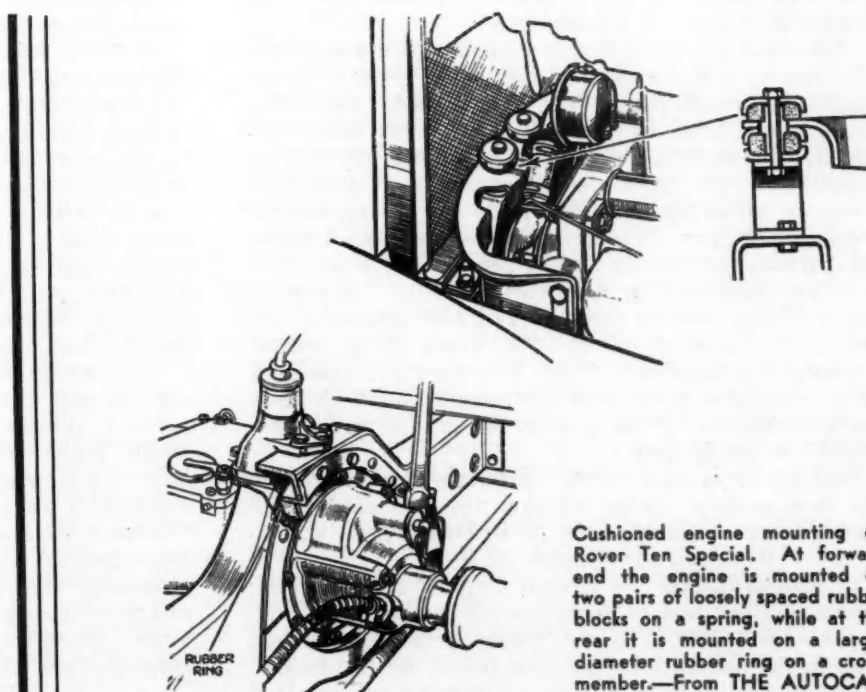
British makers are following the American lead also in respect to front-end appearance, in adopting the slightly sloping, dihedral form of radiator front, with a chrome-plated vertical center bar. Louvers also are being shifted in an effort to improve appearances; in one case they are arranged horizontally, while another makers divides them between the hood and the cowl.

One of the chief items in specifications of passenger cars in England always is the tax rating. This rating, which is based upon the number of cylinders and the cylinder bore, denotes the number of pounds sterling annual tax which must be paid on the car. It probably was fortunate for the British industry that the tax was automatically decreased by the abandonment of the gold standard. Since the British pound was taken off the gold standard it has suffered a depreciation of nearly 30 per cent, and part of this at least has been reflected in increased commodity prices and increased wages; and since the annual tax has remained nominally the same, it has virtually decreased. In spite of this, however, the tax remains one of the most important items of operating cost, and practically all of the new models are of small displacement and therefore have a low tax rating.

An outstanding example of the new small cars is the M.G. Midget, brought out by a firm which has been prominent in racing in recent years. It is built principally as a sports model, that is, an open two-seater, with a top which folds into a compartment behind the seat-back. The car is equipped with a four-cylinder engine of only 52 cu. in. displacement ($2\frac{1}{4}$ -in. bore by $3\frac{1}{4}$ -in. stroke), and has a wheelbase of only 86 in., but in spite of this diminutive size, it is said to be capable of a speed of 80 m.p.h. on the level. It weighs

about 1250 lb., carries 27-in. tires on wire wheels, and has a rear-axle ratio of 5.37 to 1. Being geared to give this high speed with a small engine, the acceleration in high and the hill-climbing power in direct-drive naturally are limited, and for this reason the car is equipped with a four-speed gearbox of which the three higher speeds are relatively close together, so that they are all satisfactory as driving speeds. From the ratios used it would seem that the car can do 60 m.p.h. in third speed and 40 m.p.h. in second. The ratios of the three higher gears being relatively close together, shifting from one gear to another should be quite easy under practically all conditions.

Quite a number of makers turn out special sports models, that is, open two-seater cars designed for high speeds and usually following the lines of racing cars to a considerable extent. Some of these cars have the rear end of the frame underslung, and this feature recently has been adopted also for one or two chassis not



Cushioned engine mounting on Rover Ten Special. At forward end the engine is mounted on two pairs of loosely spaced rubber blocks on a spring, while at the rear it is mounted on a large-diameter rubber ring on a cross-member.—From THE AUTOCAR.

of the sports type. Thus a new Lanchester of 10 hp. rating has a frame which is hung beneath the rear axle, and the spring shackles are provided with shackle bolts with grooved or "threaded" bearing surfaces. Underslinging of the frame obviates the need for a large kick-up over the rear axle, which always has been a source of lack of rigidity in chassis frames. The Lanchester frame has the further peculiarity that in addition to a very substantial X-type central cross-member, it has only two other cross-members, at the front and rear respectively.

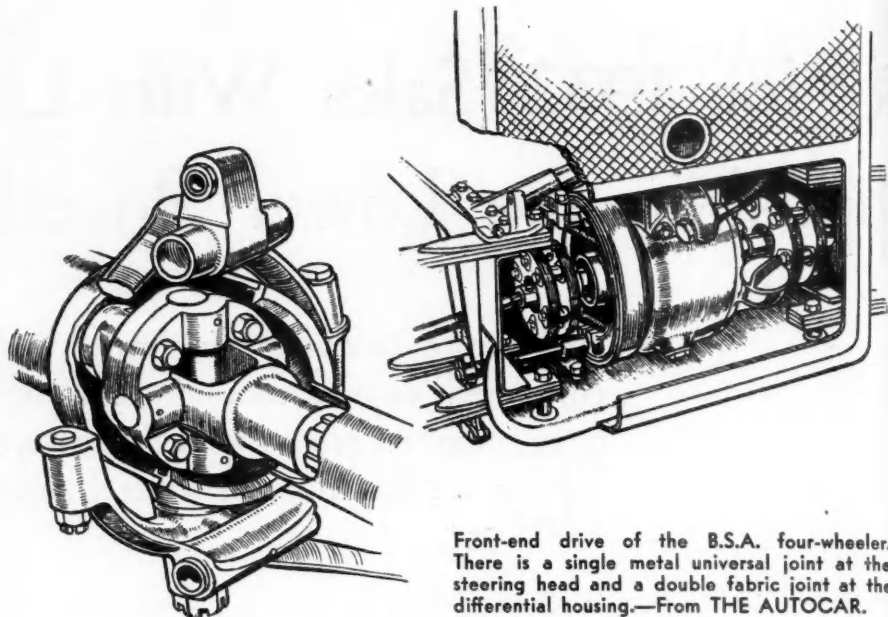
Among sports models recently announced is the Riley, which is equipped with a 91 cu. in. six-cylinder engine. This engine has a barrel-type crankcase made in one casting with the six cylinders. The crankshaft is inserted into the crankcase from one end, and to make this possible the central bearing is made of such large diameter that the crank throws can be slipped through it. This large diameter of the rubbing surface, together with the high speed of the engine, naturally results in the generation of considerable heat in the oil film, and to keep down the temperature of the bearing, the supporting web is made hollow and the space within it communicates with the cylinder water jacket.

To prevent loss of power from overlapping of inlet and exhaust periods, two carburetors are fitted, each supplying three cylinders, and on the opposite side of the block there are two exhaust manifolds, each connected to a separate exhaust pipe.

Camshaft drives on the new engines are almost exclusively by double-strand or dual roller chains. These small engines all run at very high speeds—the M.G., for instance, turns over at 5350 r.p.m. at 80 m.p.h. car speed and is said to be able of turning up to 5800 r.p.m.—and for high speeds the roller chain is claimed to have the advantage that pin loads due to centrifugal forces are smaller. In some of the smallest and cheapest cars, where the driving and driven sprockets are close together, no adjusting means are provided. In a good many of the smaller cars the fan and generator are driven by the same V-belt. Sometimes the generator is located on top of the engine, and the fan is mounted on an extension of the armature shaft; in other cases the generator is on the side of the engine and a triangular drive is used.

Pump-feed of fuel to the carburetor is general in the new models. Many employ the AC diaphragm pump, but an electric pump of British origin, known as the Petrolift, is also popular.

In several models the storage battery is carried in a pressed steel box or container on the forward side of the dash. This, of course, makes it more accessible than in the conventional location below the front-compartment floor boards, and it also slightly reduces the



Front-end drive of the B.S.A. four-wheeler. There is a single metal universal joint at the steering head and a double fabric joint at the differential housing.—From THE AUTOCAR.

length of cable connections required. It might be thought that under the hood the battery would be exposed to higher temperatures, and that the electrolyte, therefore, would evaporate at a more rapid rate; but it is not at all certain whether evaporation actually is more rapid under the hood than in the airstream from the engine compartment in which the average battery is located.

The new extra-small spark plug with 14-mm. thread diameter is finding favor with British makers. Compression ratios are seldom mentioned in descriptions of new British cars, but it can be imagined that in their eagerness to get the most power from engines of limited tax rating, British designers use as high a compression ratio as practicable and also run their engines at high speeds, both of which practices tend to make the engines more sensitive to hot plugs, and the 14-mm. plug is more readily kept cool than the larger sizes.

Another feature that has met with favor among British manufacturers of late is flexible mounting of the powerplant. In one design the powerplant is supported at the front by two rather closely-spaced rubber blocks on a frame cross-member, while at the rear it is hung from a banjo-type frame cross-member through a large diameter rubber ring. Such a mounting naturally gives considerable angular freedom, and it is worth mentioning that all control devices are mounted on frame parts rather than on the powerplant. In another car the powerplant is yieldably supported on rubber blocks and coiled springs.

Gear synchronizing has been introduced in the British industry for the first time by the Sunbeam Company, a subsidiary of General Motors. However, a sports model turned out by this concern, as well as a large car which is said to be chauffeur-driven in most cases, does not have this feature.

Free wheeling is not new in England, for several free-wheeling units were marketed there about a decade ago. They did not make much headway, however, and never became a standardized feature of car equipment. Since its wide adoption by car makers in this country, free wheeling naturally received renewed at-

(Turn to page 457, please)

Prices Must Be Pushed Up—

(Continued from page 444)

"We most decidedly favor a general advance in commodity prices . . . this is the only salvation for business."

"A general advance on all steels during the next quarter would stimulate business and hasten buying."

"A policy of increased prices, rather than one of cutting prices, will tend to hasten the return of prosperity."

The general opinion of the large second group is pretty well typified by the following statement from an important parts company executive who says:

"Like most manufacturers, we would be very glad to see a rise in prices of material which we manufacture and sell to the automotive industry. However, it is doubtful in my mind whether added price could now be secured from most automotive manufacturers."

This same idea is developed by another executive, who says:

"I would like to see a product sold on a profitable basis as I said at the outset of this letter. Everybody would be better off. After all, the price the public should pay for an article should include fair wages, fair material prices, reasonable overhead, administrative and selling costs, etc."

The president of a big parts company expresses himself in a manner which reflects a number of other letters from this second group when he says:

"Prices of equipment parts used by automobile manufacturers have been depressed to a point where it has injured the parts makers and, in the writer's opinion, has not helped the manufacturer of automobiles. We frankly feel that the attitude of the automobile manufacturers should be changed and that an increase in the list price would help."

"Before we can feel any decided upward effect, prices must advance," says the sales manager of a factory equipment company, who also voices the opinion of many in this largest group. The group strongly favors increased prices, in other words, but does not believe that arbitrary increases by individual companies can stimulate buying.

The third group emphasizes, as stated by one sales manager, the idea that "Only the supply-and-demand basis can be used." Any attempt to increase prices artificially or arbitrarily can result only in less buying by a public whose purse has been badly depleted, and, consequently, more unemployment.

"We do not feel that an increase in prices will revive business," one executive says. "In many instances an increase would only retard business."

Even more clearly the view of this group is stated by the sales manager of a well-known truck parts concern. He writes:

"We take sharp issue with any idea or belief that declining prices bring depression and advancing prices better times. This is absolutely an inverse statement of the law of supply and demand and could not be countenanced as a premise in any discussion of business conditions or influences."

"It is true," he continues, "that declining prices and depression, as well as advancing prices and better times, are concurrent. Both facts, however, are merely conclusive evidence that the law of supply and demand is in good working order."

And this view is reinforced by the following from another letter:

"There is a good bit of confusion of ideas among our business people regarding the theory that a wholesale advance in prices will bring better times."

"The economist has long recognized the principle that advancing commodity prices invite speculation in commodities; which in turn hastens the return of prosperity to the point of boom. On the other hand, at the bottom of the depression increased buying of finished consumer goods begins because prices of finished products are low and there are bargains to be had at prices people can afford to pay."

"At present, any attempt to artificially raise the price of finished goods in an effort to create buying through fear of higher prices later would be futile; the sequence is all wrong. Besides, such a thing would have to be done by agreements, and price agreements never hold."

One cannot read these two hundred letters without having brought forcibly to mind the varying effect of price in the merchandising of different types of commodities. An indication of probable price increases in connection with a raw material such as steel would be a far greater encouragement to buyers to purchase for future requirements than a similar increase in price of factory equipment.

As the secretary of a Western garage equipment manufacturing company says, "It does not seem to be logical to endeavor to handle this situation on any general or blanket basis. A great many commodities, for instance, particularly in the line of equipment such as our own, have not declined in price since the peak days of 1928-1929. Therefore, I cannot visualize any very great beneficial effect at this time of the policy of a general advance in prices."

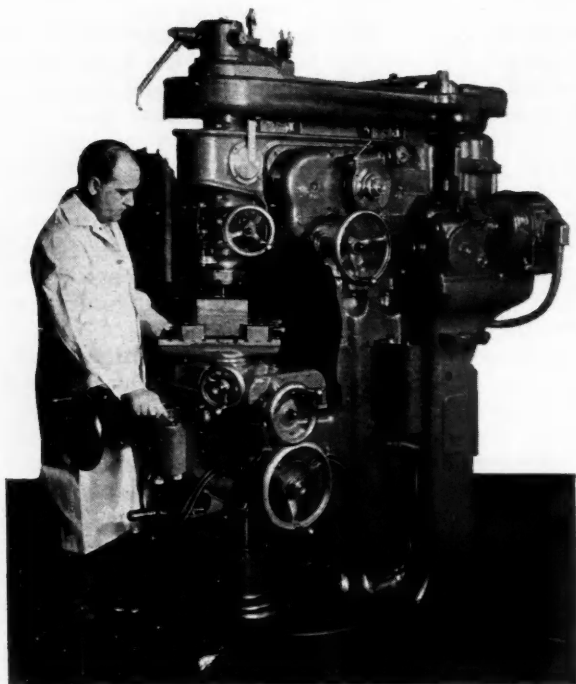
"On the other hand, there no doubt are a number of commodities, more particularly in other fields, where prices have been very materially reduced in an effort to afford volume under adverse conditions. In those cases, it would be logical and helpful to advance those prices to a point where they afford a normal margin of profit."

Several letters stated that prices in the writer's particular part of the industry had not been materially reduced during the depression. An overwhelming majority, however, carried stories of devastating reductions and profitless operation.

One of the most important of the secondary situations developed by this interesting group of letters is the very direct relation between the profitless prices which parts and equipment makers have been chiseled down to by the vehicle manufacturers and the depletion of buying power among the thousands of employees and former employees of these parts and equipment companies. Touched on by the quotation which begins this article, that topic will have separate analysis in a subsequent discussion in these pages.

Practically all of the executives replying feel that wage scales should be advanced—must be advanced, in fact, before buying power can be restored in any large measure. And practically all of them seem to agree that these higher wages can't come unless they are preceded by higher prices for finished products.

Oscillating Head of Pratt & Whitney Die Sinker Increases Production



A front quarter view of the P&W 2A Universal die sinker with the operator

COMING on the heels of a stimulating series of articles in *Automotive Industries* dealing with the role of the machine tool builder, it is particularly significant to learn that the Pratt & Whitney Company has just announced a new die-sinking machine which is said to achieve savings up to 75 per cent in regular production.

Engineers and factory executives will be properly interested because the machine may offer a way out to those who have withheld engineering changes because of the cost of new dies.

In general work range, dimensions, and vertical design the 2A Universal die sinker is similar to the well-known P&W No. 2 die sinker, which can handle a large percentage of drop forging die work.

The No. 2A Universal die sinker applies a new idea to die making, that of making cherrying cuts without special attachments or special cutters, and using power to feed the cutter. This has the double effect of shifting a very difficult hand operation to a quick machine operation, and eliminating costly cherrying cutters. Only standard die-sinking tools are used for either straight or cherrying cuts. It is claimed that the machine not only lowers the cost of die-machining operations, but leaves the die in such an excellent condition of finish that hand work in every case is much less than is customary.

Cherrying always has been one of the slowest die-sinking operations, even with the use of a cherrying attachment. Cherrying cutters can be used only for the lightest of finishing cuts because the half centers on which they are mounted greatly limit the available power. Moreover a special cherrying cutter is required for each diameter. There are many partly rounded shapes which the standard cherrying attachment cannot produce at all, but which are very simple with the new Universal machine.

It performs cherrying and straight die-sinking operations without changes in setup. Either the cutter can be moved through a circular path using the oscillating head set at any required diameter, or the entire head can be locked securely in position and used for regular rectangular cutting.

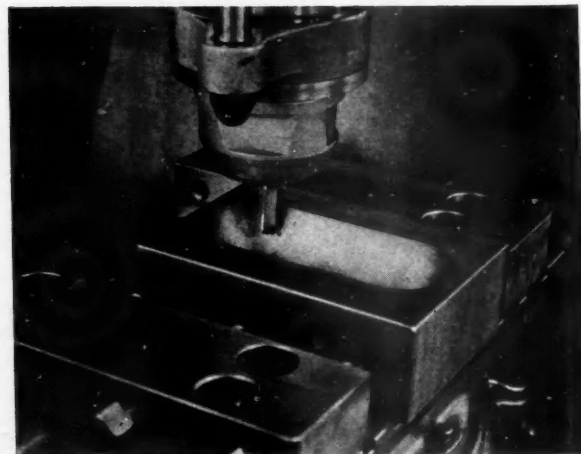
One of the principal features is the oscillating head equipped power feed using a separate motor. By means of this head an ordinary die-sinking cutter is moved through a semi-circular path producing a cylindrical cavity. This method is much faster and a great deal more accurate than the old way. In addition it produces the correct draft on the die, and eliminates cutting the draft by hand afterward. The power feed makes operation easy.

The machine weighs approximately 6100 pounds net, including the motors and electrical equipment. It occupies a floor space of 57 in. x 85 in.

The hand wheels and controls are arranged in duplicate on both sides of the machine. This permits the operator to work on either side.

The general working dimensions of the machine include a maximum distance of 17½ in. from the working surface of the vise to the end of the spindle. The knee has a vertical travel of 16 in. and the spindle quill a travel of 2½ in. The distance from the column

(Turn to page 459, please)



A typical cherrying operation using the oscillating head in combination with the rotary vise and longitudinal feed

British Makers Bid for 1933 Sales With Lines of Wide Appeal

(Continued from page 454)

tention from British makers, and Rover has just announced that it will include a free-wheeling unit as standard equipment in its 1933 models. The unit is mounted back of the transmission, hence is effective in all forward speeds, and is automatically locked when the reverse is engaged.

Silent intermediate gears also have been adopted by a goodly proportion of the makers whose 1933 announcements have appeared thus far. In most cases herringbone or double-helical gears are used. A silent third or silent second is even more important in the low-powered British small cars than in the average American car for the reason that with the much smaller piston displacements the lower gears must be used more. With herringbone gears it is not necessary to provide for end thrust, and gearbox design therefore is simplified, as compared with boxes in which ordinary helical gears are used.

A number of the new models have what is referred to as remote control of the transmission, which apparently also originated in connection with sports models. In these latter cars the seat is generally quite far back on the frame, only a short distance ahead of the rear axle. In that case, in order to bring the shift lever into a convenient position, the cover-plate of the transmission with the slider bars is extended rearwardly and carries the shift-lever mounting at its end.

Lanchester has brought out a small car of 10 hp. rating which is equipped with a transmission comprising a fluid flywheel and a planetary gear with pre-selective control. In the past this type of transmission has been confined largely to cars with powerful engines, and that it has been adopted for a car of such modest rating indicates that the constant power loss in the fluid flywheel is negligible.

The X-type of chassis frame, referred to by British writers as a frame with cruciform member, is making considerable headway. In a new Sunbeam model a further development of this type of frame is exemplified. From each side rail a channel section starts to sweep inward immediately back of the engine. Further back these channel pieces are curved into parallelism, and they terminate at an ordinary cross-member located underneath the back of the driver's seat. Back of this cross-member the space between side rails is filled by a steel pressing which forms both a tunnel for the propeller shaft and foot wells for the rear passengers.

The new cars of the season in Great Britain also include a front-drive model, a four-wheeled B.S.A., built by a firm which has in the past turned out a three-wheeler with front-drive. The new car is a small, low-priced type with an engine of 61 cu. in. and selling at about \$550. In addition to having front drive the car has independent springing, the steering heads being supported by four quarter-elliptic springs each, with their stub ends bolted to the driving gear housing. The engine is a four-cylinder design with only two main bearings, that at the forward or driving end being a ball bearing, which is probably used chiefly for reasons of space economy. The transmission is a three-speed design, and control is by the now familiar method of a

rod projecting rearward into the driver's compartment, which has both a sliding and rocking motion. The drive to the wheels is of rather unorthodox design, having double fabric universal joints near the differential housing and a single metal joint concentric with the knuckle pivot. Most front-drive cars, it may be mentioned, have single joints at the inner and double joints at the outer ends of the axle shafts.

Welding of Commercial Chassis In an Austrian Plant

(Continued from page 448)

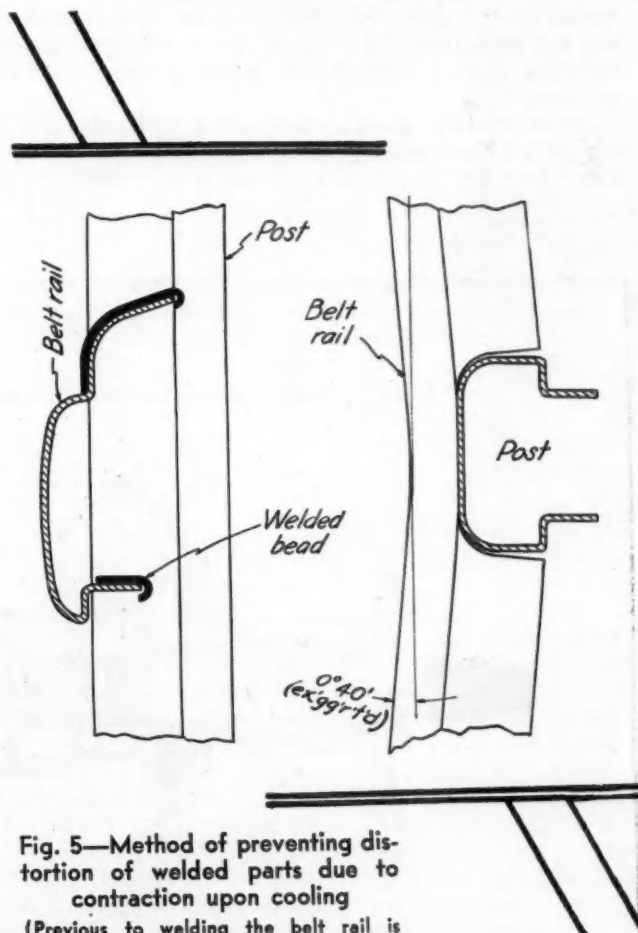


Fig. 5—Method of preventing distortion of welded parts due to contraction upon cooling

(Previous to welding the belt rail is slightly bent by clamping it to a fixture of suitable shape. This fixture is removed immediately after the welding operation is completed, and contraction of the metal around the weld straightens the rail out again)

first set of pressings is ready after 35 days from the date of the order for tools, and the first complete frame is finished after 42 days. The first welded frame can be completed in 15 days from the date of ordering the material.

Hydraulic Device Developed to Cure "V"

**Baker Wheel and Rim Co. presents
an attachment for the steering gear
and an improved universal joint**

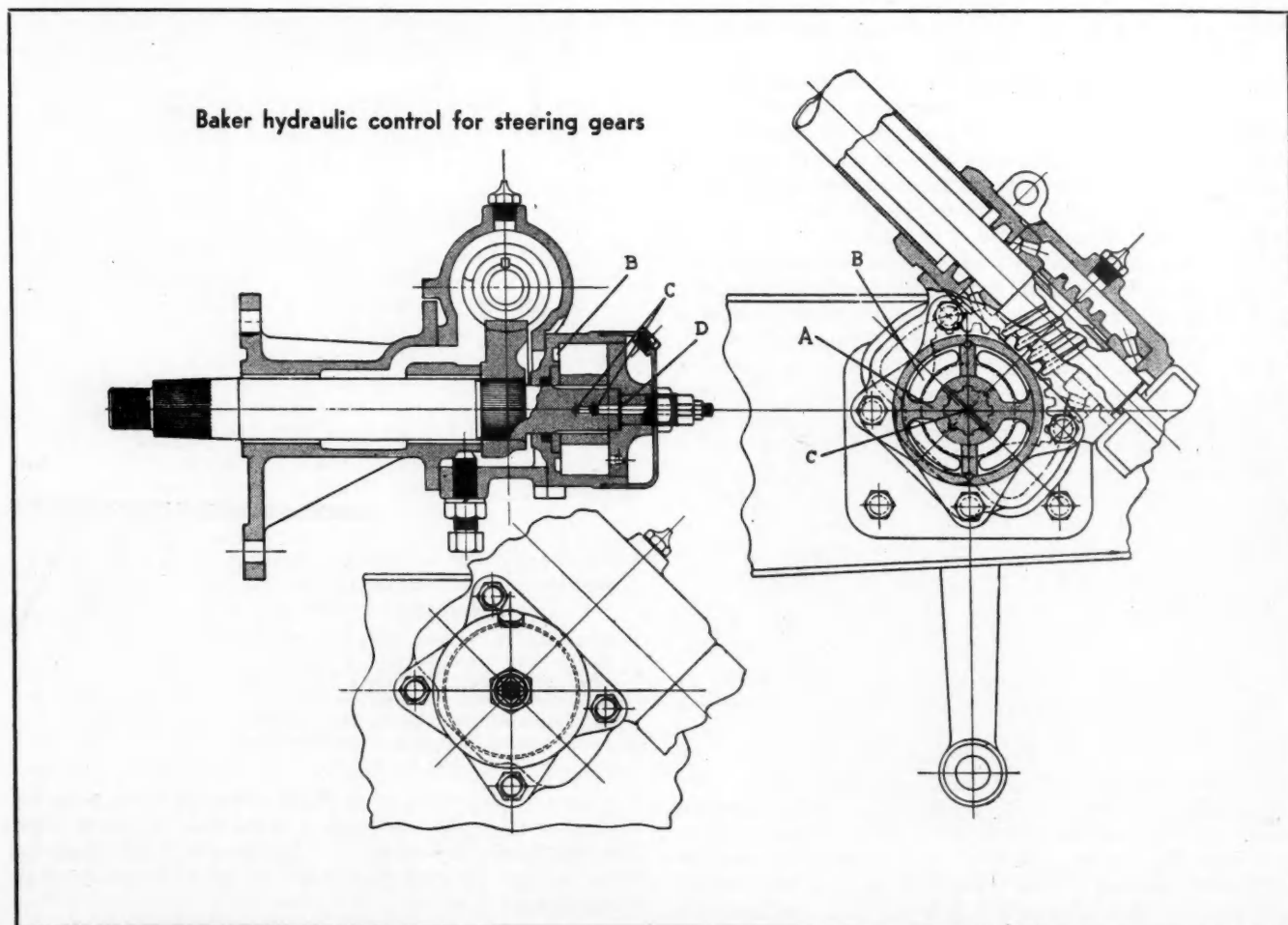
DURING the past few years quite some trouble has been caused by "wheel-fight" or steering-wheel shock due to road irregularities. It was early recognized that shocks to the road wheels must not be allowed to reach the steering wheel, and the device most widely used as a preventive has been the "kick shackle" for the left front spring. It is stated, however, that this method of double-shackling the front spring on the side where the steering gear is located has not been uniformly successful in overcoming the difficulty, and further work is being done on the problem.

An interesting shock eliminator or hydraulic steering control has been developed by the Baker Wheel and Rim Company of Detroit. It consists essentially of

a hydraulic shock absorber of the conventional type, but differing in action therefrom in that it has a restricted center range, instead of a free center and restricted movement on both sides of the center range.

The only change which it is necessary to make to a conventional steering gear in order to apply this device to it, is to provide a new sector shaft having an extension on the inner end toward the engine. This inner end is splined to carry the vanes *A* of the hydraulic shock absorber. The shock-absorber body, it will be noted, is provided with four relief grooves *B* to render the unit ineffective at a certain small angle in either direction from the straight-ahead position of the road wheels.

Metering passages are drilled through the vane hub



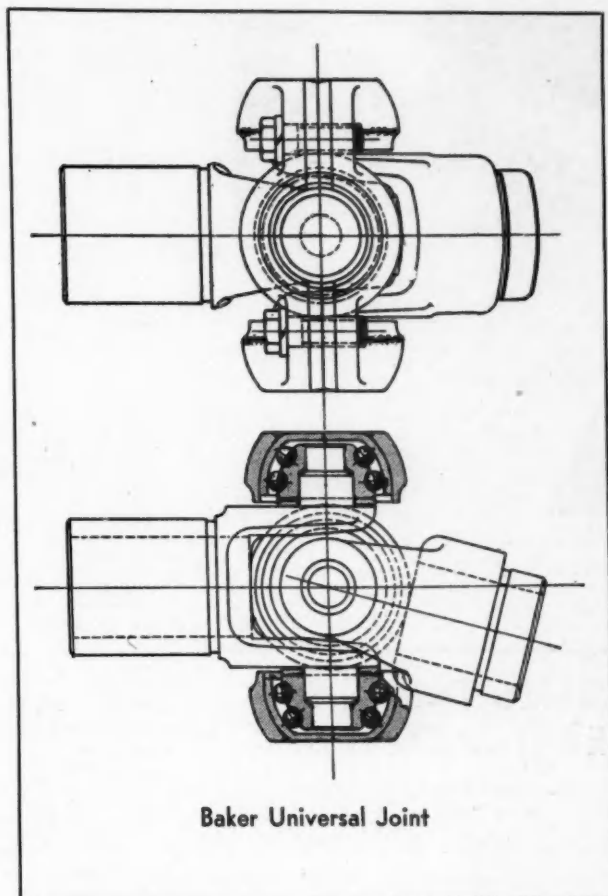
"Wheel Fight"

and the sector shaft at *C*, and these passages also serve as pressure equalizers. The metering can be easily changed, however, by means of a needle valve *D* which screws into the shock-absorber cover.

The action of the control is as follows: In the straight-ahead position, if a bump is encountered by the road wheel, this is transmitted to the steering connections in the normal manner up to the sector shaft. Here such sharp motion or kick is halted by the hydraulic unit.

This action can be made effective over any desired number of degrees from the straight-ahead position by changing the location of the relief grooves *B*. Five degrees to both sides of the central position has been found a satisfactory value. Beyond this, steering wheel kick is not important, as car speeds then are necessarily lower, and within these ranges the relief grooves permit free motion of the vanes inside the housing, thereby eliminating any tendency to measurably increase the steering effort required.

While the unit adds slightly to the resistance to quick steering motions from the straight-ahead position, this is not considered a serious objection, for the reasons that the effort required to move the steering arm from the central position is normally low and the



velocity of the arm resulting from turning the steering wheel also is low. Moreover, the resistance can be varied by adjusting the needle valve.

Oscillating Head of Pratt & Whitney Die Sinker Increases Production

(Continued from page 456)

face to the center of the spindle is 21 in. The table has longitudinal and transverse travels of 12 in. each. The vise will take a block up to 9 in. x 10 in.

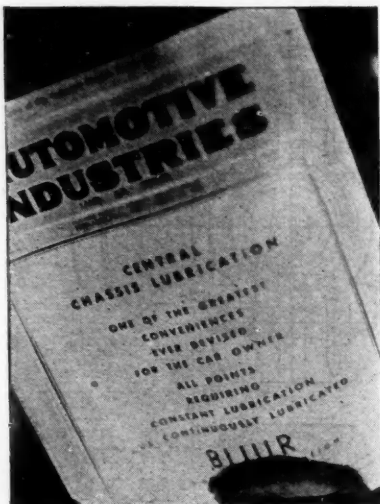
The oscillating head is mounted on two large eccentrics arranged with an adjustable throw so that the head can be revolved through a diameter ranging from 0 to 3½ in. The adjustment for diameter is on the right side of the head, and consists of a worm and wheel actuated by a hand crank. A scale is provided so that the diameter may be set quickly and accurately. The eccentrics maintain an accurate circular path at all times in either direction. When the oscillating movement is not needed, heavy binders are provided which lock the head rigidly in position.

On each side of the head housing is mounted a round dial graduated in varying diameters. A pointer attached to the oscillating head moves over the face of this dial, thus giving the position of the cutter at any point during a cylindrical cut.

Power feed to the oscillating head is provided by a ¼ hp. 4-speed reversing motor which operates through a worm reduction unit and a 2-speed gear box. A controller mounted on the right side of the column

provides for the four motor speeds, and a convenient control lever at the operator's position provides for starting, stopping and reversing this motor as desired. The two speed change gear box, together with the four motor speeds, provide eight feeds for any spindle speed.

It is claimed that it is possible to sink cuts with this machine which are impossible with the ordinary die sinker even when equipped with a charring attachment. By combining the rotary table feed and the oscillating cutter movement it is easy to sink a spherical cavity. Moreover, it is possible to sink a charring cut below the surface of the die, something which cannot be done with charring cutters. A quarter cylinder can be cut by feeding the cutter through an arc of 90 degrees and using the longitudinal feed. By using the upper half of the oscillating travel an inverted cylinder or sphere can be produced either on the surface or below the surface of the die. Moreover, the oscillating movement "tracks" either forward or backward. This was proved by cutting a ball and a spherical cavity using the oscillating feed and rotary vise. No flat spot was produced at the apex of either.



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Now comes James McIntosh* and advances the contention that port conditions should be governed by the necessity of controlling the inertia force of the exhaust gas. Would that not mean the same as designing valve size, lift and timing of a four-cycle engine with regard to size and length of exhaust pipe and muffler?

It is easy enough to control the inertia force after the exhaust gas has left the cylinder. A smooth exhaust pipe of proper diameter with easy or no bends and between 5 and 6 ft. long intensifies the effect of the inertia force so that it is possible with an old-fashioned, three-port, two-cycle engine to by-pass the fresh charge from the intake to the transfer port and eliminate crankcase compression entirely after the engine is operating at high speed.

Difficulty in starting and throttling, however, are so serious that no use is made of that possibility, since a loss of power at top speed has to be taken into the bargain as well. Otherwise, these two-cycle engines could operate on two ports alone. But it is just as easy to kill the inertia force the moment the exhaust gas has left the cylinder, so that the fresh charge fills the entire cylinder without any of it going through the exhaust port before doing its work.

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After all, the proof of the pudding is in the eating. Schliha engines develop and hold better than a horsepower per cubic inch piston displacement at 4500 r.p.m. This in itself is a record for engines without supercharger and sufficient evidence that none of McIntosh's assumptions are founded on facts.

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Springless Cars and Shimmy

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Mr. Stoeckel says that the commissioners agree that 45 m.p.h. is a maximum not to be exceeded "unless conditions warrant." Qualified that way, substitute 20 m.p.h. Substitute 60 m.p.h. If the Connecticut authorities live up to the popular opinion of authorities he means that anyone caught exceeding 45 m.p.h. gets fined. . . . un-

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I know of no theoretical considerations which would indicate quicker stopping or better control at speed of the heavy car. In fact, the light car has an advantage in being controllable by a person of moderate strength with a numerically lower steering gear ratio. On this point ask anyone accustomed to fast driving, preferably a race driver.

The quality which makes a car manageable at speed may be called road balance, an indefinable but immediately recognizable combination of correct construction, steering geometry, weight distribution, springs, shock absorbers, and brakes, all properly maintained by the owner. In general the heavy car lacks fast enough steering, stiff enough springs and a low center of gravity.

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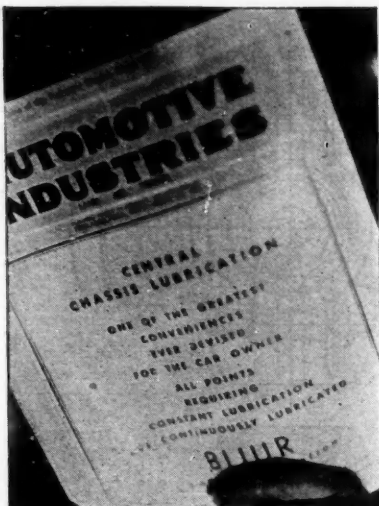
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Automotive Oddities—By Pete Keenan

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IS ENGLAND'S
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RACER.



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OLD TIRES ARE USED TO TRAIN COLLEGE FOOT-BALL PLAYERS.

NAT WRIGHT BATTERIES

A SIGN NEAR BROOKLYN, N.Y.



The NEWS TRAILER

Write us if you know an oddity

"... as goes Maine ..." has a new significance. Because the rock-ribbed Pine Tree State has served for these many years as a forecaster of what voters will do, all of motordom is interested in the eight-to-one defeat of a referendum proposing to increase the present four-cent gasoline tax. (More on page 467.)

Early in Europe's history there was reason enough for the curfew bell; its tolling warned all and sundry to extinguish or cover their fires for fear of nocturnal conflagrations.

Out in Vancouver today gasoline pumps must rest from 8 p. m. to 7 a. m. for a different reason. Service station operators told the municipal lawmakers that there wasn't enough profit to keep open nights, and to prevent competitive chiseling, a law was passed.

A fleet of kitchens, designed in the chaste Georgian mode, is hauled trailer-wise by a white Reo coupe to

match, to demonstrate the advantages of a modern, completely electrified housewife's heaven as a part of General Electric's sales program. It's an Aerocar development.

Intrigued by the title, we sent for a copy of "Mosquitoes Transported by Airplanes," wondering how come the *Aedes aegypti* had to be transported from place to place in airplanes.

It seems they don't want to travel, necessarily, but as involuntary stowaways they are giving public health officials no little worry in Southern States where a mosquito may start an epidemic.

Firestone Tire & Rubber Co. will bring a giant 15-year-old rubber tree from its African plantation to the Chicago World's Fair next year as center of a miniature rubber plantation in the Hall of Science at the fair. It is two feet in diameter, has been producing rubber latex for 10 years.

NEWS

Transportation Men in Toronto

S.A.E. Session Opens With Interesting Array of Able Speakers

TORONTO, Oct. 4—A highly interesting meeting was opened here yesterday, when the Transportation Activities of the Society of Automotive Engineers began its three-day session.

Two timely and important subjects were presented yesterday morning when Chairman F. C. Horner, General Motors Corp., introduced W. J. Cummings, Surface Transportation Co.; Harry M. Williams and J. W. Carl of Frigidaire Corp., who presented papers on "Ventilation of Motorcoach and Truck Bodies" and "Refrigeration of Motor Trucks."

A great deal of development work has been done in ventilation and refrigeration, and air-conditioning, for the comfort of bus passengers, is making rapid headway, the speakers pointed out.

B. B. Bachman, vice-president in charge of engineering, Autocar Co., presided at the luncheon yesterday, when H. C. Kelting, secretary of the Kentucky Motor Club, Everett Hoar, Hoar Transportation Co., and the Hon. J. T. Bickell, registrar, Province of Ontario, spoke. Delegates inspected the Toronto Transportation Commission's plant and motorcoach terminal in the afternoon.

Among the speakers scheduled for today's luncheon were George T. Hook, editor, *Commercial Car Journal*, who spoke on the "Economies of Oil Reclaiming," and James L. Orr, of the National Electric Light Association, who discussed "Employee-owned Cars." L. V. Newton was chairman.

This morning's technical session opened with T. L. Preble, Brockway Motor Truck Corp., in the chair. Speakers were F. I. Hardy, Boston, and R. D. King.

T. H. McDonald, Bureau of Public Roads, and an authority on highways and motor vehicle traffic, spoke on "Legislative Regulation of Motor Ve-

hicles and Its Effect on Design and Operation," and discussion was led by Pierre Schon, General Motors Corp.; M. C. Horine was chairman.

F. K. Glynn, American Telephone & Telegraph Co., was scheduled to run the Thursday morning technical session at which Dr. Graham Edgar, Ethyl Gasoline Corp., and Burgess Darrow, Goodyear Tire & Rubber Co., were to present papers on "Automotive Engines and Their Fuels" and "Pneumatic Tires, Old and New," respectively.

Austin M. Wolf, consulting engineer, New York, was to present a paper on "Six-Wheeled Trucks," and E. E. LaSchum, Railway Express Agency, was slated to discuss "Business of Motor Vehicle Fleet Operation."

Olds Deposits Check, Backs Durant Bid

\$100,000 Placed with Receiver of Car Company

LANSING, Oct. 4—Ransome E. Olds has placed a \$100,000 check with the Central Trust Co. to bid on the Durant plant here, when the property goes up for sale, Oct. 6. The bank is receiver for the Durant Motor Co. of Michigan.

The huge factory was first offered at auction Sept. 10, but although about 40 inquiries had been made regarding the property, there were no bidders at the sale.

Reynolds Spring Adds to Payroll

JACKSON, MICH., Oct. 3—Eight hundred employees will be put back to work at the plants of the Reynolds Spring Co. here between now and Oct. 15, Charles G. Munn, president, announced.

Three hundred fifty employees were rehired during September. Since Aug. 26, the "Bakelite" plant has been operating seven days a week on a 24-hour basis each day, and the company expects to continue this rate of operations, Mr. Munn said.

The company's cushion-spring plant in Jackson is operating, but not on a full-time basis.

Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for Automotive Industries

NEW YORK, Oct. 6—General trade in several parts of the country was further stimulated last week by the continued seasonable weather. While business in many lines is still below that a year ago, the current trend appears upward, whereas last year it was downward. However, the low level of purchasing power is very much in evidence. Wholesalers and jobbers in the clothing industry are enjoying a fair trade, but the orders are small. Among the light industries, textiles and shoes are still making a good showing.

There was some decline in prices of agricultural products last week. Better weather conditions had a deflating effect on cotton prices; wheat, rye, and oats fell off, while corn sold at the lowest price in 35 years.

FREIGHT AT NEW HIGH

Railway freight loadings during the week ended September 17 totaled 587,302 cars, which is the highest level for any week since the week ended December 12, 1931. The total for the week ended September 17 showed an increase of 85,478 cars above those during the preceding week, which included the Labor Day holiday, but a decrease of 155,312 cars below those a year ago and a decrease of 365,259 cars below those two years ago.

ELECTRIC PRODUCTION DOWN

Production of electricity by the electric light and power industry of the United States during the week ended September 24 was 10.2 per cent below that in the corresponding period last year.

DEPARTMENT STORE SALES OFF

According to the Federal Reserve Bank of New York, department store sales in that district during August were 16 per cent below those a year ago. Chain-store sales in that district during August were 13½ per cent below those a year ago.

CRUDE OIL PRODUCTION

Average daily crude oil production for the week ended September 24 amounted to 2,178,550 barrels, as against 2,191,600 barrels for the preceding week and 2,193,350 barrels a year ago.

FISHER'S INDEX LEVEL

Professor Fisher's index of wholesale commodity prices during the week ended October 1 stood at 62.2, as against 62.4 the week before and 62.9 two weeks before.

Wilson Now Heads Copeland Products

DETROIT, Oct. 4—William Robert Wilson, former Reo head, chairman of the board of Copeland Products, has been asked by directors to assume active management, and will become president.

He succeeds Louis Ruthenburg, former Yellow Coach executive, who resigned as president and director.

The report that Mr. Wilson was to head Detroit Aircraft Corp., as published last week in *Automotive Industries*, was erroneous.

Studebaker-Rockne Exports Show Gain

SOUTH BEND, Oct. 3—September exports of Studebaker and Rockne cars exceeded exports last September by the largest percentage registered for any month this year over the corresponding month of 1931, according to Arvid L. Frank, vice-president and general manager of Studebaker Pierce-Arrow Export Corp.

"Our passenger car exports for the month exceeded September, 1931, by 136 per cent," he said, "and our total car shipments for nine months show a gain of 10½ per cent over the corresponding period last year. We consider this an extremely favorable showing in view of the loss in exports of over 50 per cent suffered by the industry as a whole for the same period.

"We are greatly encouraged by our third quarter record," he said, "since our percentage of increase for nine months shows a substantial gain over the same figure for six months. Exports for the first half increased 6½ per cent over the

same period last year. For the nine months the increase amounted to 10½ per cent.

"The fact that our percentage of gain mounted as it did in the third quarter would indicate that we may expect still greater improvement over 1931 in the fourth quarter.

"If the trend continues, our business for the last quarter will exceed last year by a good margin, and further strengthen our position as fourth in the industry in total exports."

Graham Stockholders To Hold Meeting Oct. 24

DETROIT, Oct. 3—A special meeting of Graham-Paige Motors Corp. stockholders will be held Oct. 24, at which time a plan to change common shares to a par value of \$1 from a no par status will be presented.

Represents Chain Belt

CLEVELAND, Oct. 4—Peden Machinery Co. will represent Chain Belt Co.'s entire line.

Automotive Orders Aid Steel Gains

Week's Improvement Reflects Car Makers Activity in Buying

NEW YORK, Oct. 6—Automotive business figured more prominently in the gains recorded in this week's steel buying than it has in several weeks, General Motors current four-quarter requirements helping considerably.

Steel production on the whole is now estimated to be about 20 per cent above the low point to which it had declined during the summer, and market sentiment is serenely confident that the gains so far recorded denote a trend that will continue consistently during the remainder of fall.

Aside from minor irregularities in the sheet market, the subject of price comes in for very little mention.

Nor is it likely that, until aggregate demand has attained a volume that will keep at least twice the capacity now operating in use, anything like a strenuous effort will be attempted by producers to put their business on a more profitable basis, but the fact was forcibly brought home to steel buyers through the week's news developments that the long range outlook is for a determined program on the part of the steel industry to make sales yield better returns.

Extension of the organized activities of the steel industry, as reflected in recent announcements, is interpreted by forward looking consumers as intimation that long range cost calculations must be formulated with a view to the probability that recovery of the steel market to more normal, "out-of-the-red" price levels will be among the outstanding 1933 developments.

Pig Iron—Quiet and fairly steady.

Aluminum—Slightly more activity is noted in the Detroit and Cleveland markets. Prices are unchanged.

Copper—Consumers are fairly well covered, some having bought when the metal sold at 5¼c a pound, but the market remains quite steady at 6¼c, delivered Connecticut Valley.

Tin—Relatively heavy supplies, reflected by end-of-September statistics, caused the market to yield ground at the beginning of the week when Straits tin was offered at 24.20c.

Lead—The pendulum in the lead market has swung the other way. After repeated declines which sent the contract price of the leading interest down to 3c, New York, advances were announced by all sellers, the market at the beginning of the week being 3.10 @ 3.15c, New York, with business more active.

Zinc—Quiet and slightly easier.

Bendix Plans To Reduce Share Value

CHICAGO, Oct. 3—Bendix Aviation Corp. yesterday announced a plan to reduce the stated value of its shares from \$25 to \$5. The change, notice of which will be sent to stockholders later, is being made to effect savings on New York transfer costs.

Motor Vehicle Production

PASSENGER CARS¹ (U. S. and Canada)

	1929	1930	1931	1932	Per cent change 1932 from 1931
Jan.	364,773	242,671	142,869	101,915	-28.7
Feb.	431,755	293,037	187,948	98,604	-47.5
Mar.	546,489	348,087	241,727	106,003	-56.0
1st Quar. 1,343,017		883,795	572,544	306,522	-46.5
Apr.	571,956	393,804	300,960	126,597	-58.0
May	541,310	382,619	282,096	165,025	-41.5
June	469,260	298,130	215,979	166,646	-22.5
2nd Quar. 1,582,526		1,074,553	799,035	458,268	-42.6
6 Mos. .. 2,925,543		1,958,348	1,371,579	764,790	-44.2
July	439,598	230,761	187,324	101,478	-45.8
Aug.	452,857	190,864	158,851	79,073	-50.2
8 Mos. .. 3,817,998		2,379,973	1,717,754	945,341	-45.0

TRUCKS

Jan.	57,765	40,938	35,475	21,160	-40.5
Feb.	65,950	52,925	41,863	24,291	-41.8
Mar.	79,587	69,031	47,671	21,274	-55.4
1st Quar. 203,302		162,894	125,009	66,725	-46.6
Apr.	91,855	74,477	53,138	28,539	-46.7
May	94,940	62,080	47,805	27,480	-42.5
June	98,164	51,466	41,496	23,558	-43.3
2nd Quar. 284,959		188,023	142,439	79,577	-44.1
6 Mos. .. 488,261		350,917	267,448	146,302	-45.2
July	78,703	44,960	35,386	17,135	-51.5
Aug.	59,985	43,296	32,890	15,318	-53.5
8 Mos. .. 626,949		439,173	335,724	178,755	-46.6

CARS AND TRUCKS

Jan.	422,538	283,609	178,344	123,075	-31.0
Feb.	497,705	345,962	229,811	122,895	-46.5
Mar.	626,076	417,118	289,398	127,277	-56.0
1st Quar. 1,546,319		1,046,689	697,553	373,247	-46.5
Apr.	663,811	468,281	354,098	155,136	-56.3
May	636,250	444,699	329,901	192,505	-41.5
June	567,424	349,596	257,475	190,204	-26.0
2nd Quar. 1,867,485		1,262,576	941,474	537,845	-43.0
6 Mos. .. 3,413,804		2,309,265	1,639,027	911,092	-44.4
July	518,301	275,721	222,710	118,613	-46.6
Aug.	512,842	234,160	191,741	94,391	-50.7
8 Mos. .. 4,444,947		2,819,146	2,053,478	1,124,095	-45.2

¹ Includes Taxies.

8 Months Canadian Car Sales Off 41%; Trucks Down 44%

36,310 Passenger Cars Registered in Dominion as Ford and Chevrolet Each Obtain 27% of Total, Running Neck and Neck; 6183 Trucks Are Sold

TORONTO, Oct. 4—Passenger car sales in Canada for the first eight months of 1932 were 36,310, as compared with 61,259 for the period ending Aug. 31, 1931, representing a decrease of 41 per cent.

For the eight months of 1932, Chevrolet and Ford were running neck and neck for leadership, Chevrolet domestic sales being 9883 as compared with Ford's 9881, each 27 per cent of total sales.

During the month of August, however, Ford was considerably ahead, with 1095 sales in Canada against 649 Chevrolet sales. Ford new car business was one-third of the 3223 Canadian sales for the month.

All makes were down from last year with the exception of Plymouth, which registered 2628 sales in Canada for the eight months as compared with 2353 for the corresponding period of 1931. The total of all Chrysler units sold up to Aug. 31 was 5553, as compared with 7073 for the 1931 period.

Sales in Canada of General Motors cars totaled 14,564 for the 1932 month, or 56 per cent of the Canadian total, as compared with 25,849 for the same period in 1931, representing 42 per cent of all sales one year ago. Buick sales in Canada to Aug. 31 last were 1999, while Pontiac accounted for 1913.

Studebaker, without Rockne, was down to 782 from 1216, while Rockne accounted for 599 sales for the eight months this year.

Willys-Overland sales totaled 1031 as against 2156 one year ago.

Essex total for this year so far was 976, compared with 2120, while Hudson was 274 against 669.

Durant total was 916, compared with 1692 on Aug. 31, 1931, but there were also 443 Frontenac sales in addition this year.

Graham was 423 as against 871, and Hupmobile 269, compared with 555 sales one year ago.

That Canadian tariffs and the dis-

counted Canadian dollar have played havoc with imports from the United States is indicated in the drop from 1001 to 196 in Nash sales in Canada, and the Auburn drop to 148 sales in the Dominion from 716 for the eight months of 1931. Packard was at 89 on Aug. 31, compared with 157 one year previously.

TORONTO, Oct. 4—Sales of commercial vehicles in Canada for eight months of 1932 ending Aug. 31 totaled 6183, or 44 per cent of the total sales of 10,937 for the same period of 1931.

Only International Harvester was ahead in Canadian sales so far this year, as compared with the same period of 1931, showing 591 registered as against 502 for the 1931 period.

Chevrolet truck sales stood at 2257, compared with 3107 of a year ago, while G. M. C. had 376 as against 500 up to Aug. 31 of last year. Reo's 1932 sales so far were 199, compared with 279 for the 1931 period, and Dodge trucks sold to the number of 330, against 556 last year. Gotfredson registered 30; against 32 to Aug. 31 of last year, while Rugby trucks were 172 to 329. Ford trucks dropped to 1641 from 4459.

Willys trucks stood at 65 for the 1932 total in Canada to Aug. 31 as compared with 79 one year before, while White was at 66, as against 145 for the 1931 period; Federal, 39, against 64 last year; Diamond T down to 78 from 150; Stewart, 36, against 64 for the comparable eight months, and Studebaker trucks at 113, compared with 215 one year ago.

The one British line substantially represented in the Canadian list of sales showed a total of 29 to Aug. 31 last, as compared with 33 for corresponding period one year ago, this being Leyland.

Mack sales for the 1932 period were 10, while the total was 110 for the eight months of 1931.

S. A. E. Production Experts in Session

Buffalo Meeting is Held With National Metals Congress

BUFFALO, Oct. 4—Authorities on automotive production methods met here yesterday for the Production Meeting of the Society of Automotive Engineers, which was held simultaneously with the National Metals Congress and Exposition this week.

The meeting closed with a luncheon, at which Chairman Joseph Geschelin, engineering editor of *Automotive Industries*, introduced K. H. Condit, editor, *American Machinist*, who spoke on "Adjusting Equipment to Current Conditions."

The luncheon was a joint affair of the S.A.E. and the American Society of Mechanical Engineers. M. A. Thorne, chairman of the Buffalo section, S.A.E., was in charge of the arrangements.

A paper by Alex Taub, development engineer, Chevrolet Motor Co., discussed equipment limitations of design from the vehicle designer's point of view.*

LeRoy F. Maurer, works manager, Pierce-Arrow Motor Car Co., discussed the subject from the production executive's standpoint.

C. R. Maxon, New Jersey Zinc Co., used a film to show the manufacturing processes of zinc alloys for die casting. He touched upon the nickel-chromium plating-devices.

Current applications of cemented tungsten carbide were described by Robert D. Prosser of Thos. Prosser & Son. He pointed out that the manufacturing process of the cutting material has progressed sufficiently to produce various grades, with a resulting savings in cost.

*Mr. Taub's paper will appear in the Oct. 15, 1932, issue of *Automotive Industries*.

Lawyers Demand Auto Insurance

Philadelphia Attorneys For Compulsory Measure; Compensation Idea Loses

PHILADELPHIA, Oct. 5—Compulsory liability insurance for Pennsylvania motorists was approved in principle yesterday by the Philadelphia Bar Association.

A special Committee on Motor Vehicle Legislation was directed to formulate a proposal for submission to the next State Legislature.

An effort to have the association favor the adoption of a statutory plan of compensation for personal injuries and deaths caused by motor-vehicle accidents, with limited liability and without regard to fault, was defeated.

Caterpillar Adds Rural Sub-Dealers

CHICAGO, Oct. 3—Caterpillar Tractor Co. is taking steps to strengthen its competitive position in the agricultural machinery field.

The company is now taking on sub-dealers in rural sections to work under direction of the regular dealer.

The subdealers will confine their work to agricultural sales while the regular dealer will act as industrial sales manager and distributor in his area.

Illinois Highway Users Organize

CHICAGO, Oct. 3—The newly organized Illinois Highway Users conference, headed by Lafayette Markle, president of the Chicago Automobile Trade Association, reports that it is meeting with success in its efforts to arouse public sentiment against diversion of road funds raised by gasoline taxes to charity, as proposed in bills pending before the special session of the legislature.

Gasoline Consumption by States, July 1932

NEW YORK, Oct. 4—These figures, compiled by the American Petroleum Institute, based upon the quantity of gasoline sold or offered for sale, as reported by wholesalers and dealers in the states listed, under provisions of the gasoline tax or inspection laws, reflect, as nearly as it has been possible to obtain it, the consumption of gasoline during July 1932, with previous month and year ago comparisons.

While it is felt that the figures herewith are fairly comparable, it must be borne in mind that more or less widespread tax evasion and changes in the basic laws under which the figures

were collected over the period compared, may have disturbed the comparability of the figures. It is, therefore, not correct to base percentage changes in demand upon the figures presented herewith.

All demand calculations used by the American Petroleum Institute are based upon Bureau of Mines' monthly statistics, which we regard as being more truly indicative of actual consumption. As we see the figures set out below, they represent a break-up, as nearly correct as it is possible to obtain it, by states, of the total demand in the United States, as calculated from Bureau of Mines' statistics.

	Tax Rate July Cents	June, 1932 Gallons	Month of July, 1932 Gallons	July, 1931 Gallons	7 Months Ending With July, 1932 Gallons	July, 1931 Gallons
Alabama	5	11,934,000	11,501,000	15,403,000	80,697,000	95,409,000
Arizona	5	6,596,000	5,222,000	6,536,000	41,150,000	44,133,000
Arkansas	6	10,125,000	9,389,000	13,209,000	63,180,000	72,700,000
California	3	152,103,000	104,174,000	110,692,000	805,861,000	836,209,000
Colorado	4	16,499,000	12,836,000	20,654,000	91,978,000	104,786,000
Connecticut	2	23,191,000	23,566,000	25,691,000	135,823,000	135,712,000
Delaware	3	2,842,000	4,572,000	3,925,000	22,043,000	21,186,000
District of Columbia	2	9,442,000	9,178,000	8,581,000	59,379,000	52,664,000
Florida	7	16,378,000	15,028,000	19,769,000	128,530,000	143,333,000
Georgia	6	16,674,000	16,682,000	20,556,000	116,058,000	126,647,000
Idaho	5	5,577,000	5,026,000	6,392,000	27,334,000	33,315,000
Illinois	3	89,352,000	88,568,000	102,366,000	543,408,000	569,663,000
Indiana	4	44,712,000	49,414,000	49,414,000	269,185,000	274,184,000
Kansas	3	30,359,000	41,683,000	42,943,000	195,350,000	206,960,000
Kentucky	5	14,874,000	15,025,000	17,253,000	92,087,000	98,278,000
Louisiana	5	14,351,000	12,996,000	16,664,000	94,873,000	105,903,000
Maine	4	11,711,000	12,869,000	14,936,000	57,446,000	59,370,000
Maryland	4	17,677,000	17,246,000	17,674,000	108,407,000	104,885,000
Massachusetts	3	54,050,000	54,571,000	59,988,000	313,215,000	315,383,000
Michigan	3	77,627,000	59,649,000	86,135,000	428,204,000	466,392,000
Minnesota	2	46,045,000	36,621,000	50,307,000	223,603,000	251,016,000
Mississippi	6	18,541,000	18,780,000	11,339,000	158,117,000	66,523,000
Missouri	2	45,812,000	36,449,000	50,280,000	249,801,000	280,200,000
Montana	5	7,106,000	6,163,000	8,140,000	38,430,000	45,628,000
Nebraska	4	21,948,000	16,151,000	23,995,000	115,555,000	134,101,000
Nevada	4	2,329,000	2,110,000	2,537,000	12,871,000	13,173,000
New Hampshire	4	6,573,000	7,187,000	8,700,000	34,574,000	35,332,000
New Jersey	3	68,887,000	63,867,000	72,273,000	401,742,000	399,622,000
New Mexico	5	4,448,000	4,128,000	5,551,000	26,414,000	30,379,000
New York	3	153,114,000	152,775,000	169,277,000	896,207,000	897,448,000
North Carolina	6	19,110,000	20,424,000	22,376,000	137,187,000	140,136,000
North Dakota	3	10,746,000	8,999,000	13,247,000	56,611,000	68,522,000
Ohio	4	90,013,000	75,809,000	99,113,000	524,509,000	561,827,000
Oklahoma	4	26,869,000	22,870,000	30,904,000	156,445,000	176,732,000
Oregon	4	15,954,000	13,913,000	16,769,000	93,401,000	102,519,000
Pennsylvania	3	97,214,000	93,376,000	103,283,000	589,451,000	578,269,000
Rhode Island	2	10,124,000	9,485,000	10,435,000	56,353,000	54,599,000
South Carolina	6	8,710,000	8,815,000	10,911,000	59,994,000	68,980,000
South Dakota	4	11,303,000	10,256,000	15,418,000	63,464,000	83,710,000
Tennessee	7	15,323,000	15,403,000	18,377,000	105,766,000	119,566,000
Texas	4	69,561,000	66,447,000	80,127,000	430,366,000	474,281,000
Utah	4	6,369,000	4,751,000	7,384,000	31,571,000	36,552,000
Vermont	4	4,987,000	5,087,000	6,027,000	23,886,000	24,817,000
Virginia	5	21,767,000	19,983,000	23,690,000	129,912,000	132,824,000
Washington	5	24,351,000	20,577,000	27,277,000	141,741,000	154,260,000
West Virginia	4	12,053,000	11,407,000	14,950,000	70,396,000	76,538,000
Wisconsin	4	41,127,000	41,772,000	48,914,000	232,027,000	253,292,000
Wyoming	4	3,966,000	3,738,000	4,829,000	19,535,000	22,458,000
Total		1,558,426,000	1,356,538,000	1,615,215,000	8,654,142,000	9,150,416,000
Daily Average ..		51,948,000	43,759,000	52,104,000	40,821,000	42,960,000
Change from previous year:						
Total Decrease			258,677,000		496,274,000	
Percentage Decrease in Daily Average			-16.0%		-4.98%	

* These are state tax rates per gallon. In addition there is the Federal tax of one cent (1c) per gallon.
†—Estimated. ‡—Revised.

Rockne in Eighth Place

DETROIT, Oct. 3—F. L. Wiethoff, sales manager, Rockne Motors Corp., has reported that month by month Rockne has improved its standing in the industry, moving from last place in registrations in January to eighth place in August. To date Rockne has shipped more than 21,000 cars.

Sparks-Withington Reports Net Loss

DETROIT, Oct. 3—Sparks-Withington has reported net loss for year ended June 30 of \$1,930,514.

The plan presented to the stockholders to reduce capital was approved.

Scott Reelected President of Novo

Annual Meeting of Stockholders Approves Policies

LANSING, Oct. 3—Richard H. Scott was reelected president of the Novo Engine Co. when the directors met last week for organization purposes following the annual meeting of stockholders to elect the directorate.

Other officers elected were Clarence E. Bement, chairman of the board of directors; Eric Teel, vice-president and general manager; E. J. Bement, vice-president, and Lee E. Haybarker, secretary and treasurer.

The board of directors consists of Mr. Scott, Mr. Bement, General Manager Eric Teel, Robert C. Rueschaw, John Bohnet, Don E. Bates, and Harry C. Teel. The meeting was the 25th annual and was held in the company's offices at the plant.

Report of the officers to stockholders disclosed a revival of the company's foundry business to real volume in the past few months. Sale of the company's manufactured products suffered the same influences that have affected other lines.

Funston Heads Canada Firestone

TORONTO, Oct. 3—William H. Funston takes over plant of Firestone Tire & Rubber Co. of Canada, Ltd., as Canadian general manager in succession to the late E. W. Besaw.

Mr. Funston was formerly manager, mechanical goods department, at Akron.

Ruden, Wright Are Promoted

DETROIT, Oct. 3—R. C. Marshall, president of Transamerican Airlines Corp. and Thompson Aeronautical Corp., has confirmed the election of John L. Ruden, Detroit, as vice-president of operations, and the selection of Paul A. Wright, also of Detroit, as vice-president of business relations.

Both men have been associated with T.A.C. since its inauguration of Middle Western air transport, sales and service operations in 1928.

Ruden entered aviation in 1917, directed motor overhaul and was instructor of the famous Liberty airplane engine for the U. S. Army Air Corps during the World War, and as operations manager helped inaugurate the nation's first transcontinental Air Mail service.

He resigned as superintendent of the U. S. Air Mail Base at Chicago in June, 1928, to join T.A.C. and to direct the operations of its Middle Western U. S. Air Mail, passenger and express routes.

Since early this year, he has been in charge also of traffic, public relations and the sales-service program of the company's ground organization of seven air bases and hangars, Thompson Aeronautical Corp.

Maine Defeats Gas Tax Increase Plan

Eight-to-One Vote
Sinks Referendum
on Fuel Levy

NEW YORK, Oct. 4—Maine defeated a proposal to increase the state's four-cent gasoline tax by a majority of 171,914 votes at the referendum held Sept. 12 last, according to the official count recently made public. Total vote on the referendum was 219,930, or within 20,360 of the total vote cast for governor, and the tax increase proposal met overwhelming defeat, 195,922 to 24,008, or in the proportion of eight to one.

The total vote was nearly twice that cast at the referendum on a similar proposal in 1930, when the increase was defeated, 80,000 to 35,000. The second referendum was made necessary by the action of the legislature in passing a measure calling for a higher tax despite the expression of the opinion of the people.

A position for a new referendum immediately, signed by thousands more than the required number of names, was filed with the governor, who directed that collection of the tax be continued at the old rate of four cents per gallon.

The occasion represented not only the second defeat of high gasoline taxes at referendums in Maine, but the fourth straight defeat by such means in this country. Voters of North Dakota twice defeated the higher tax, the second referendum like that of Maine being necessitated by the action of the legislature in raising the tax despite opposition expressed by the voters.

Public demand for reduced tax rates and general antagonism to the federal tax upon gasoline are believed to be largely responsible for the defeat of the Maine proposal. Newspapers throughout the state denounced the proposal editorially, even to the point of inveighing against the manner in which the proposition was placed before the voters, contending it did not reveal the true nature of the question at issue.

Anderson Co. Not To Be Liquidated

GARY, IND., Oct. 5—John W. Anderson, former president of the Anderson Co. and now receiver, reports that the company is not in a bankruptcy proceeding and neither liquidation of nor interruption to the business of the company is contemplated.

Under orders of the Federal Court the business, which is said to be on a highly profitable basis, is to be continued without interruption of service to its customers.

No change is contemplated in the personnel.

There is every indication that the

business will emerge from the receivership in stronger financial position than ever before and with a substantial dominance of its markets well established, according to Mr. Anderson.

"Baby" Tractor In Production

"Balilla Tractor of 88
Cu. In. Displacement

ROME (*Special*)—The recent placing on the Italian market of the Balilla "baby" car by the Fiat company has been followed by the announcement of a Balilla "baby" tractor by another Italian firm, the Societa Anonima Motomecannica of Milan.

It is essentially a reduced model of a modern farm tractor with a four-cylinder engine of 2½ in. bore by 4 in. stroke (88 cu. in. displacement). The wheelbase is 54 in. and the overall width, 46.5 in.

Front wheels are 20 by 3.5 in. and rear wheels, 23 by 4.75 in. The engine develops 10-12 hp. at its normal speed of 1300 r.p.m. The farm tractor weighs 1870 lb. in running order, and the industrial type, with solid rubber tires, 2420 lb.

The engine is started on gasoline, but as soon as it has warmed up it is switched over to kerosene.

There are six forward speeds, which are the same for both types of tractor, viz., 1.6, 2.3, 2.85, 4.2, 5.6 and 8.1 m.p.h. The price is \$690 for the farm tractor and \$800 for the industrial tractor.

Dura Sale Confirmed In Federal Court

TOLEDO, Oct. 3—Sale of the assets of the Dura Co., makers of automotive hardware, to the Richardson Securities Co., local affiliate of the Toledo Trust Co., for \$355,000, was confirmed today in Federal Court.

L. W. Rohr and J. W. Lyons, receivers, reported that as of June 30 assets of the company were appraised at \$532,374.

The new owners also are closely associated with the Toledo Steel Products Co. and some other local manufacturing interests. It is understood that the sale will make little change in actual operations of the plant.

Paasche Airbrush Reports Upturn

CHICAGO, Oct. 3—Officials of Paasche Airbrush Co. announce their records show an appreciable upturn in business during August and September, the latter month showing better volume than August.

The company officials state the low point in their business occurred in July.

Although production forces have not been enlarged, a slight increase in business will necessitate a larger working force.

Continental Widens Scope in Canada

Dominion Motors Will
Build and Sell
DeVaux Automobiles

DETROIT, Oct. 3—Another step in the enlarged automobile manufacturing plans of Continental Motors Corp. has been announced by President W. R. Angell, who said a contract was signed last week with Roy D. Kerby, president, Dominion Motors, Ltd., under the terms of which the Dominion Motors, Ltd., of Canada is permitted to make and sell the Continental-DeVaux automobile in Canada.

Dominion Motors, Ltd., is one of the outstanding Canadian motor car manufacturers. It is a successor to Durant of Canada. The organization and its predecessor have built and sold over 100,000 Red Seal powered cars in the Dominion.

The Continental-DeVaux line will be produced by the Dominion organization under the name of Frontenac.

Dominion Motors has a Canadian organization of 375 dealers. For the eight months of 1932 "Dominion" made cars were fourth in sales in the Province of Ontario. During July, "Dominion" cars were third in sales in Toronto.

The Dominion plant at Leaseide, Ont., covers 14½ acres, has 600,000 sq. ft. and its production capacity is 1500 cars monthly.

Roos on European Trip; To See Shows

Delmar G. Roos, chief engineer of the Studebaker Corp. and vice-president of the S.A.E., sailed for Europe last week. He will go to Paris, where he is scheduled to make the principal address at the annual banquet for all European Studebaker dealers, held in connection with Paris Salon which opens Oct. 6.

From there he will travel to London in time for the famous automobile show in the Olympia, from Oct. 13 to 22.

During his visit abroad Mr. Roos will inspect the latest offerings of the largest European automobile makers and confer with their engineers.

Canadian Airways Gains in Traffic

MONTREAL, Oct. 4—Canadian Colonial Airways has completed its fourth year of operation between Montreal, Albany and New York, showing an increase of 51 per cent in the number of passengers, and 190 per cent in the amount of mail carried in the last twelve months, as compared with the corresponding period of 1930-1931.

Retail Credit is Relatively Stable During First Half, Government Finds

Fifth Semi-Annual Survey Indicates First Six Months Has Been Steady, Despite Low Volume of Sales and Increased Tendency Toward Cash Deals

WASHINGTON, Oct. 4—Conditions in the retail credit field continued relatively stable during the first six months of the current year compared with the corresponding period of 1931, it is indicated by reports received by the Department of Commerce in its fifth semi-annual retail credit survey.

While a tendency to increased buying for cash is revealed, open credit and instalment purchases continued to make up the bulk of the total sales volume of the concerns studied.

Payments on open account and instalment purchases were made in amounts only moderately less, in proportion to commitments, than in the January-June period of the preceding year, despite prevailing business conditions. Returns and allowances were approximately the same for the two years.

The current study is based upon reports received from 405 retail establishments, including 99 department stores, 65 furniture stores, 40 jewelry stores, 62 men's clothing stores, 41 shoe stores, 82 women's specialty stores, and 16 electrical appliance stores, situated in 25 cities, with total net sales of nearly half a billion dollars in the first half of this year.

Cash sales accounted for 47.5 per cent of the total sales volume in the 1932 period as compared with 45.3 per cent in the first half of 1931, the report shows. Open credit transactions made up 43.4 per cent of the total, and instalment commitments 9.1

of the current year's sales, as contrasted with 45.0 per cent and 9.7 per cent a year ago.

Collection percentages for all stores reporting averaged 37.3 per cent on open accounts receivable and 14.1 per cent for deferred (instalment) payments for 1932, and 40.1 per cent and 15.4 per cent for 1931.

Bad debt losses increased from 0.8 per cent of open credit accounts in 1931 to 1.2 per cent in 1932, and from 1.9 per cent on instalment accounts to 3.2 per cent, the increase in both cases amounting, however, to only 0.1 per cent of total sales.

Returns and allowances for the current year averaged 10.0 per cent of total gross sales, a change of 0.2 per cent from the 1931 period. Losses from fraudulent buying and worthless checks were unchanged in relation to sales, amounting to 0.03 per cent and 0.02 per cent of total volume, respectively, for both years.

Aggregate sales as reported by the 405 concerns indicate a decrease of 23.7 per cent in dollar volume of business for the six months, accounted for in part by a fall of from 13 to 15 per cent in the general retail price level.

The report "Retail Credit Survey, January-June, 1932" may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., or from District Offices of the Bureau of Foreign and Domestic Commerce in principal cities.

N.S.P.A. Adds Four Manufacturing Members

DETROIT, Oct. 3—E. P. Chalfant, executive vice-president of the National Standard Parts Association, has announced the election of four manufacturers to membership in the association.

The names of the newly elected concerns follow:

Garlock Packing Co., Palmyra, N. Y.; Blackhawk Manufacturing Co., Milwaukee, Wis.; Ditzler Color Co., Detroit, Mich., and Moto Meter Gage & Equipment Corp., Toledo, Ohio.

Pontiac Sales Up

PONTIAC, MICH., Oct. 3—September registrations of new Pontiac Sixes and Eights in Wayne County were slightly larger than in August, and exceeded by approximately 30 per cent the registrations of Sept., 1931.

He regards the September figures as particularly encouraging because

the increase is contrary to the usual seasonal trend and because the August total which they exceeded was the largest August volume that Pontiac has recorded in Wayne County since 1929.

Will Reorganize Detroit Aircraft

DETROIT, Oct. 3—Plans for the reorganization of the defunct Detroit Aircraft Corp. were confirmed by P. R. Beasley, former president and one of the coreceivers with the Detroit Trust Co.

It has been reported that the plan proposes a general manufacturing business to be headed by William B. Mayor, former chief engineer of Ford Motor Co.

Ford Wage Down to \$4

DETROIT, Oct. 3—Effective Oct. 1, the minimum wage of the Ford Motor Co. has been reduced to \$4.

British Aero Exports For 1931 Off 15%

Slump Offset Partially By Shipments to Continent

LONDON (Special)—British aircraft, engines and parts exported in 1931 totalled 304 complete units, 363 engines and aircraft parts valued at \$3,030,749, bringing the value of exports for the year to \$8,436,451 as compared with \$9,966,716 in 1930.

The largest decrease to any one country was that in the exports to India which dropped off in 1931 to \$2,039,512 from \$2,961,483.

The decline in business to the British Empire territories and the slump in shipments to Latin America were offset to some extent by the increase in trade with European countries, an increase from \$3,082,508 in 1930 to \$4,013,475 in 1931.

Exports to China increased, but there was a drop in trade with Japan. Belgium's purchases of complete aircraft increased from 15 in 1930 to 40 in 1931, and in value from \$124,107 to \$657,910, while the engines consigned to that country numbered 45 valued at \$442,662 as compared with 10 and \$25,642 in 1930.

Greece, Sweden and Denmark bought more planes but fewer engines in 1931 than in the previous year.

Exports from Great Britain, comprising aircraft and aircraft engines and parts in the years 1924-1931 inclusive amounted to:

1924....\$5,297,954	1928....\$6,448,598
1925....5,521,980	1929....10,469,535
1926....5,425,399	1930....9,966,716
1927....5,272,881	1931....8,436,451

Heath Aircraft Will Expand Niles Plant

CHICAGO, Oct. 4—Plans for expansion of the Niles (Mich.) plant of the Heath Aircraft Co. were announced following receipt of governmental approval of a new light sport model designed by the company.

Officials received a type certificate from the Department of Commerce, approving a new plane to be sold for less than \$1,000.

The new ship is a center wing, single seater sports model and is to be placed on the market at once. The new model is the third light aircraft designed by the company and tests have proved it safe and durable.

Hudson-Essex Gains

DETROIT, Oct. 3—Hudson-Essex sales for the week ended Sept. 24 gained 18.7 per cent over the corresponding week last year.

New car registrations for August in 44 states including District of Columbia, but not including Colorado, Mississippi, Nevada, Tennessee and Wyoming, are 106.2 per cent ahead of July.

Buick Plant Will Make Olds Parts

Transmissions, Forgings and Castings Will Be Manufactured in Flint

DETROIT, Oct. 4—Transmissions, forgings and castings for Oldsmobiles will be manufactured in the plant of the Buick Motor Co., Flint.

The move is part of General Motors' plant of centralization of manufacturing facilities. A total of thirty-six carloads of machinery have been shipped from the plant of the Muncie Products, Muncie, Ind., to Flint.

Earlier in the year the Armstrong Spring Co. was consolidated with Buick.

Ohio Town Will Inspect Brakes

PORTSMOUTH, OHIO, Oct. 4—The city council has adopted an ordinance providing for general brake inspection of all cars and trucks used on the city's streets.

The new ordinance becomes effective Jan. 1. Four service stations will be designated for brake inspection and this service will be free to owners. Inspections must be made twice yearly.

Seek Airworthiness Rules for England

LONDON (Special) — Uniform airworthiness requirements for British aircraft to insure the manufacture of aircraft adaptable to the conditions in the entire British Empire may be established.

New standards including the strengthening of undercarriages, the improvement of auxiliary fittings and engine adjustment to fit the different gasoline and oils in use in the different parts of the British Empire are being considered. The load factor for British planes built for dominion or colonial use may be increased. It has been suggested that firms which do not export planes may continue to adhere to the present regulations.

Freeport Company Buys Kissel Parts

FREEPORT, ILL., Oct. 5—Stephens Service Co. has purchased the entire stock of Kissel parts and has moved the service from Hartford, Wis., to its warehouse here.

The concern services the Stephens automobile, Kissel cars, funeral cars, trucks, etc., Alamo gasoline engines, and the Moline Universal tractor from a warehouse of 30,000 ft. of floor space.

Ollwell is Publisher

Lee E. Ollwell, formerly vice-president in charge of sales of Chalmers Motor Car Co., and later vice-president of the

National City Bank, has been appointed publisher of the *New York Evening Journal* by William Randolph Hearst.

Mr. Ollwell went from newspaper work into advertising, became advertising manager of the National Cash Register Co., joined Chalmers and was later elected to a vice-presidency of the New York bank in 1921, having served as assistant to the president for several years.

Quebec Gas Taxation Raises \$21,000,000

QUEBEC, Oct. 4—Quebec's gasoline tax has yielded \$21,000,000 since it came into force in the spring of 1924.

Official statistics show that up to and including June 30 last, the amount contributed by motorists of the Province of Quebec, of other sections of Canada and of the United States totaled \$21,434,742.47, of which part a large sum has been paid in by United States tourists.

When the tax was first imposed, it was two cents per gallon, \$66,398 being derived from the tax at this rate.

Increased expenditure in connection with highways construction led the Government to increase the tax two cents per gallon. It was accordingly increased to five cents per gallon on April 1, 1928, and remained at that rate until last December, when an extra cent was levied.

From \$66,398, which were the first figures obtained by the province under the tax, the receipts have jumped up to \$5,000,000 a year, this being an indication of the increase in automobile traffic.

The first figures covered only a few months, and the initial returns for a complete year 1924-25, mark the one and only time that the \$1,000,000 mark was not touched, for from then on the receipts increased gradually, with not a single decrease being registered in the eight and a half years that the tax has been in operation.

Yearly returns from the tax are as follows:

Year	Tax Rate	Revenue
1923-24	2c	\$66,398.35
1924-25	2c	652,576.85
1925-26	3c	1,012,003.19
1926-27	3c	1,285,654.28
1927-28	3c	1,680,490.99
1928-29	4c	3,253,039.78
1929-30	4c	3,972,038.65
1930-31	5c	4,405,160.43
1931-32	6c	5,107,379.95

Total\$21,434,742.47

Chalfant Named Trade Executives' Treasurer

E. P. Chalfant, executive vice-president of the National Standard Parts Association, Detroit, was elected treasurer of the American Trade Association Executives at the annual fall meeting of the A.T.A.E. in Atlantic City.

The organization's membership is comprised of executives representing the foremost trade associations in the United States.

Zeppelin to Build Ross Steering Gears

Subsidiary of Famous German Firm Enters Equipment Agreement

INDIANAPOLIS, Oct. 4—Zahnradfabrik Friedrichshafen A. G., a Zeppelin company, has taken over the manufacture and sale of Ross cam and lever steering gears in Europe, according to the Ross Gear and Tool Co., Lafayette, Ind.

Dr. Hugo Eckener, of Zeppelin fame, is chairman of ZF., and Count Brandenstein-Zeppelin, his son-in-law, is vice-chairman.

Although Ross gears are standard equipment on a number of the European passenger cars, trucks and buses, this new connection is expected to increase the use of the Ross equipment on vehicles of continental manufacture. The German concern is now supplying gears and transmissions to 43 of the larger automobile manufacturers across the seas.

Riehle and Torrington Are in Manufacture Arrangement

PHILADELPHIA, Oct. 4—A manufacturing agreement has been concluded between Riehle Bros. Testing Machine Co. and the Torrington Mfg. Co., whereby the machines and instruments of the former company will be built by the latter at its plant in Torrington, Conn.

The Riehle company, established in 1825, will retain its corporate identity and will continue to conduct its engineering and sales.

124 Airports in Britain, But 300 Are Needed

LONDON (Special)—Great Britain has 124 airports, landing fields and seaplane stations. The growth of private aviation is indicated by the fact that there are now only two less private civil airports than those licensed for public use. Twelve airports have customs facilities.

A recent estimate indicated that about 300 airports would be necessary in Great Britain to provide adequate landing facilities for aircraft at intervals of not more than 20 miles.

John Trix

John Trix, 83 years old, president and founder of American Injector Co., succumbed to a heart attack at his summer home in Algonac, Sept. 26.

He was a lifelong friend of the late Henry M. Leland and with the late Joseph Boyer, founder of Burroughs Adding Machine Co., and the late William H. Murphy, were strong backers of the Lincoln Motor Co. at its inception.

He was always proud to relate how he helped John Dodge get his first job in Detroit.

Canadians Stirred By Soviet Oil Deal

Political Capital Being
Made as Result of
British Import Action

TORONTO, Oct. 4—Much political capital is being made out of the action of the Dominion Government in permitting the entry of 9000 tons of crude oil from Russia into Canada, in view of the attitude of Canadian delegates at the Imperial Economic Conference against any trade or barter with the Soviet in connection with the expressed desire for trade concessions between the United Kingdom and the Dominion on automotive products, lumber, radio, foodstuffs, base materials and other items.

The cargo of Russian crude oil was the first shipment in part payment of \$1,500,000 of aluminum products to be turned out in the plant of the Aluminum Company of Canada, at Arvida, Quebec.

The political charge has been made that the Dominion Government was a party to this transaction even while Canada's representatives were dickering with British delegates at the Imperial Conference.

The stand has been taken that the Government permission for the discharge of the oil cargo is in direct conflict with the accepted policy of the Canadian Government to discourage all trading with the Soviet on the ground of unfair competition.

The oil refineries of Canada, with one exception, have protested against this new and unexpected competition and it is expected that the Dominion Government will put a stop to further imports of crude oil from Russia.

Rubber Production Up in Far East

NEW YORK, Oct. 3—Production of crude rubber increased on small estates in Malaya during August, while the aggregate outputs of large estates declined slightly, according to results of the census for that month, cabled to the Rubber Exchange of New York, Inc.

The report was awaited in the rubber trades with more than ordinary interest, owing to the sharp rise in prices for the commodity last month, and the effects that advance had upon producing rates in the Far East.

Production for both large and small estates totaled 36,408 tons, compared with 35,356 tons during July, and 36,047 tons in August last year. The increase was accounted for by estates of 100 acres or less in size which reported production of 16,124 tons, against 14,736 tons in July, and 15,106 tons in August, 1931. Estates larger than 100 acres turned out 20,284 tons, against 20,620 tons in July, and with 20,941 tons in August last year.

Estate stocks, dry basis, were 19,618 tons at the end of August, and 20,591 tons at the end of July. Dealers' stocks were 22,356 tons, against 21,008 tons at the close of the previous month.

Firestone Offers Tractor Air Tires

AKRON, Oct. 3—Firestone Tire & Rubber Co. has developed a pneumatic low-pressure tire for farm tractors. These tires, which are made for both front and rear wheels of tractors, are mounted on drop-center rims and are designed for an inflation pressure of 12 lb. p. sq. in.

Pneumatic tires make the farm tractor available for hauling vehicles and equipment on paved highways. In barnyards, orchards, meadows, and groves, and on golf courses a pneumatic tired tractor does not injure the surface, and it can be driven into farm buildings without injuring the floor.

Some of the development work on this tire was done on the 600-acre farm of Harvey S. Firestone at Columbiana, Ohio.

Federal Branch Closes

MILWAUKEE, Sept. 26—The Federal Motor Truck Co. is discontinuing its direct factory branch here. Otto P. Seefeld will become distributor in Milwaukee and surrounding territory.

Coffin is G.O.P. Executive

Howard A. Coffin, president of White Star Refining Co., has been elected chairman of the Wayne County (Michigan) Republican Committee.

Studebaker Promotes Davis

Paul R. Davis, for eight years with Studebaker Corp., has been appointed Cincinnati regional manager for the Studebaker Pierce - Arrow Rockne Sales Corp.

Lloyds, Famed Register, To Take to the Airways

Insurance Inspection of
Aircraft Is Projected

LONDON (Special)—Aviation interests of Lloyds Register of Shipping and of the British Corporation Register of Shipping and Aircraft amalgamated July 1, to form a new body whose purpose will be to set up for the service of aviation an organization equivalent to that which Lloyds has established for shipping.

Arrangements have been made for inspections of British planes to be carried out abroad by agents of the new society.

The committee controlling the new organization includes leading representatives of the aircraft constructing companies, insurance interests, air transport and other companies, as well as representatives of the principal aeronautical societies.

During the past three years the air ministry has delegated to Lloyds Register and the British Corporation Register of Shipping and Aircraft power to deal with aviation problems and each organization has carried out periodical surveys of certain classes of civil aircraft.

Schlosser Heads Auto Parts Merger

NAPOLEON, OHIO, Oct. 4—Harold L. Schlosser has resigned as general manager of the Napoleon Stamping Division of the Monroe Auto Equipment Co. to devote his time to the merger of the Milwaukee Tool & Forge Co., Milwaukee; Pressed Steel Products Co. of Napoleon, and the Saturn Electric Water Heater Co. of Bryan, Ohio.

The company will manufacture screws for automobiles, automotive parts, hardware and water heaters. Capital is \$360,000.

+ + CALENDAR OF COMING EVENTS + +

FOREIGN SHOWS

London, Olympia ShowOct. 13-22
Glasgow, Scottish Motor Show...Nov. 11-19
Paris, Aeronautical Show...Nov. 18-Dec. 4

CONVENTIONS

American Gas Association, Atlantic City (Annual)Oct. 10-14
Natl. Hardware Assn. (Accessories Branch), Atlantic City, N. J.Oct. 17-22
Natl. Tire Dealers Assoc., Atlanta, Ga.Nov. 14-16
American Society Mechanical Engineers, New York City (Annual Meeting)Dec. 5-9
Natl. Exposition of Power & Mechanical Engineering, New YorkDec. 5-10

Nat'l Automotive Parts Assoc...Dec. 12-14
Highway & Building Congress, DetroitJan. 16-20
American Road Builders' Annual, DetroitJan. 16-20
American Soc. for Testing Materials (Annual Meeting)...June 26-30

SHOWS

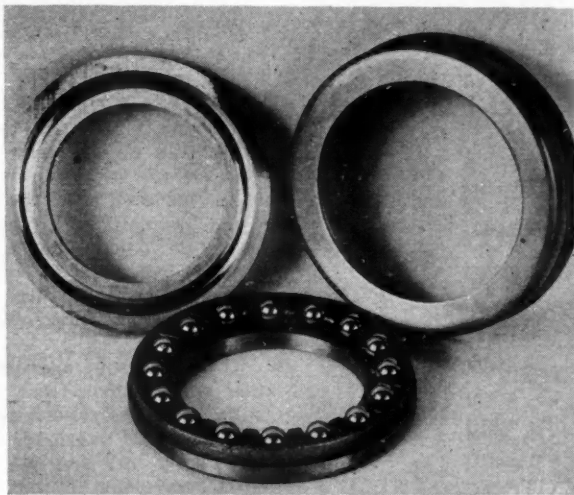
Dallas, Tex. State FairOct. 8-23
Joint M.E.A. & N.S.P.A. Trade Show, DetroitDec. 5-10
National Automobile Show, New YorkJan. 7-14, 1933
National Automobile Show, ChicagoJan. 28-Feb. 4, 1933
Kansas City AutomobileFeb. 11-18

NEW DEVELOPMENTS

Automotive Parts, Accessories and Production Tools

Bantam Clutch Throw-out Ball Bearing

A new ball thrust bearing for use in the clutch throw-out sleeve has been developed by the Bantam Ball Bearing Co. of South Bend, Ind. A photograph showing the races and the balls



Parts of Bantam ball-thrust bearing for clutch throw-out

assembled in their cage is shown herewith. The principal novelty resides in the cage, which is cast of bronze instead of being made of pressed steel. A grease-retaining band is used around the outside of the bearing, and extends radially inward on one side past the center line of the balls, so that the

centrifugal force, instead of tending to throw the grease out of the bearing, keeps it within same.

It is claimed by the manufacturer that with this bronze retainer and the grease retaining type band it is possible to remove all of the oil tubes and grease fittings commonly used be-

cause this bronze retainer has a life of approximately 100 times that of a steel retainer, and that it is now possible to consider the clutch release bearing in the same light as the clutch pilot bearing, which seldom, if ever, receives lubrication after it is installed in the car.

Grand Rapids Surface Grinder No. 0

A motor-driven surface grinder, No. 0, for fine, accurate work has been placed on the market by Gallmeyer & Livingston Co., Grand Rapids, Mich. It is available on a column as illustrated or it can be furnished in bench type. A portable type of column can be supplied to those who have occasion to move a machine of this kind from one department to another.

The knee is mounted on the main column by means of the vertical dovetailed ways with convenient provision for compensating for wear. It is raised and lowered on the vertical ways by means of the large hand

wheel. The large hand wheel is graduated in thousandths of an inch with conveniently adjustable pointer.

The table is 5 x 29 in. overall with a 5 x 12 in. working surface. Longitudinal table travel of 12 in. is provided by rack and spiral pinion and actuated by a conveniently located hand wheel. This spiral pinion gives a smooth, even action to the table and the conveniently located hand wheel makes it possible to use great rapidity in grinding. Five and one-half inches cross feed is provided by an Acme thread screw on which is mounted the convenient cross-feed hand wheel. This screw works in a stationary bronze nut in the front of the knee. Cross feed dial is graduated in thousandths of an inch.

A ½-hp. motor is standard equipment and can be furnished for direct current, or 50 or 60 cycle current



either single phase or polyphase. Motor is controlled by conveniently located switch.

Jaeger Tachometer

An unusual and compact chronometric type pocket tachometer is being shown to the trade by the Jaeger Watch Co., Inc., of New York. It can be used regardless of the direction of rotation of the machine whose speed is being measured. It is said to be unaffected by magnetic fields, weather or atmospheric variations, and to give instantaneous readings, making it possible to follow all speed variations.



The outside diameter of the case is 2½ in. and the weight is 7½ ounces. The instrument is supplied in following graduations: Type 1, 0 to 1500 r.p.m.; type 2, 0 to 3000 r.p.m.; type 3, 0 to 6000 r.p.m.

The tachometer is regularly supplied in attractive leather case with a triangular steel point and two interchangeable rubber points as illustrated.

NEW DEVELOPMENTS

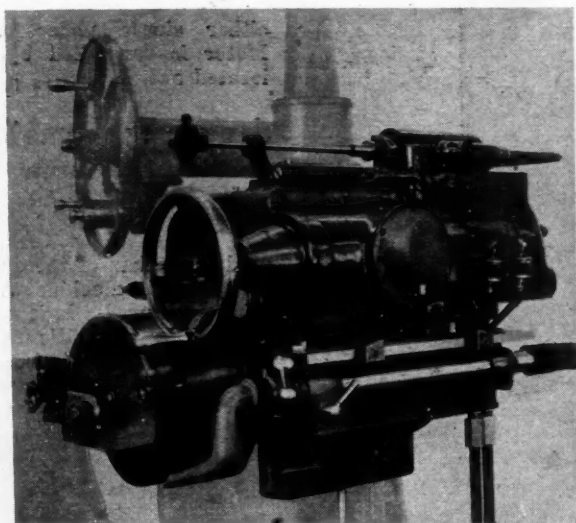
Automotive Parts, Accessories and Production Tools

Norton Surface Grinding Machine

A hydraulic-operated automatic cross feed or wheel traversing mechanism is now offered by Norton Co., Worcester, Mass., for their 10 x 12 in. surface grinding machines. Maximum efficiency from the grinding wheel is obtained, since the wheel can be fed across the work at each reversal by

wheel traverse is automatically reversed by the use of dogs which can be set to accommodate any width of work up to 10 in., the capacity of the machine.

Oil is drawn from the same reservoir and by the same pump that supplies the table traverse mechanism, and an adjustable metering device in the apron controls the amount of feed. From the metering device the oil is



increments that utilize the full width of the standard 1½ in. wheel. In the past the greatest feed possible was only a small fraction of the total wheel width. The elimination of manual cross feeding gives the operator time for gaging work or running another machine.

The mechanism is adjustable and provides any feed from 1/16 in. up to 1½ in. and the direction of the

delivered through a telescoping pipe to a traverse reverse valve mounted on the vertical slide.

Wheel truing is accomplished by manual operation of the traverse valve and the same control is used for disengaging the power cross feed to permit hand feed. The hand feed wheel, when used, is held in against a spring and is automatically disconnected when power cross feeding.

Kirk Automatic Upper Cylinder and Valve Lubricator

A new upper cylinder and valve lubricator, known as the Kirk, has been placed on the market by the Potter & Johnston Machine Co. of Pawtucket, R. I. It is made in three sizes, the smallest being for Fords, Chevrolets, Plymouths and cars of similar size; the second for medium-sized cars, and the third for large passenger cars, as well as for trucks and buses.

The lubricator is secured to the forward side of the dash and connects

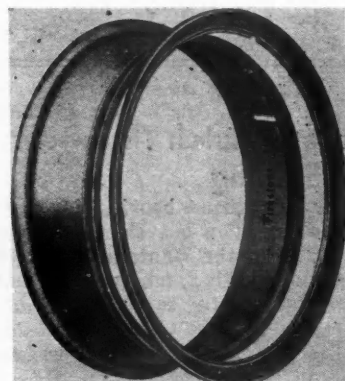
through a copper tube to the middle portion of the inlet manifold.

A special valve oil is supplied to the top of the cylinder through this lubricator and is claimed to generally improve the operation of the engine. Tests are said to have shown that oil vapor and mist introduced in large quantities into the combustion chamber while the throttle is wide open promote detonation and prevent the development of full power.

The Kirk oiler, which is actuated by the vacuum in the inlet manifold, supplies the most oil when the engine

is idling and when there is, therefore, a high degree of vacuum in the manifold, thereby preparing the engine for efficient operation under full load.

Firestone Two-Piece Type R Rim



Firestone Type R rim

Firestone Tire & Rubber Co., Akron, Ohio, has announced a new type of rim for use in the light and medium-duty bus and truck fields—its 5 and 6-in. Type R. This rim is new in principle in that it consists of a continuous ring and a continuous base, while all other two-piece truck and bus rims require a split in either the ring or the base.

Under present operating conditions and with balloon tires, the ends of a split member, especially if distorted by abuse and overload, are said to be apt to dig into and cut the tire bead, thus promoting premature bead failure. The Type R rim is claimed to provide rigid support for the entire bead and thus to increase the tire mileage.

In mounting a tire, a part of the ring is placed into a gutter of the rim, the same as a tire bead is placed into the well of a drop-center rim. The ring then being eccentric, it is easily snapped over into the gutter, and it settles firmly into place when the tire is inflated.

This 5- and 6-in. Firestone Type R rim is for use on either disk or cast wheels. It uses the standardized 28-deg. bevel mounting now standard with the truck and bus industry, and it is interchangeable with present equipment.

Cored Solder in New Containers

In response to a widespread demand, Federated Metals Corp., 75 Folsom St., San Francisco, Calif., is now manufacturing rosin core and acid core solders in the exclusive Neatpak can. This can has a hole in the top covered with cellophane, preventing dust or dirt getting to the solder while in storage. When the solder is to be used, the cellophane is broken and as much solder as required pulled out.